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IDENTIFIERS	*PLATO: *TICCIT Computer System

ABSTRACT

This bibliography contains annotations of reports, reviews, conference proceedings, other documents, and journal articles on computer based education (CBE), most of which were derived from a search of the Educational Resources Information Center (ERIC) system. Covering June 1976 through August 1980, this compilation serves as an update to two earlier papers--"The Best of ERIC: Recent Trends in Computer Assisted Instruction" (1973) and "Computer Assisted Instruction: The Best of ERIC 1973-May 1976." A brief introduction discusses instructional methods included in computer based education and explains the subject headings used in the bibliography: (1) historical references: (2) new technology, such as artificial intelligence and videodiscs: (3) new audiences, such as off-campus, handicapped, or incarcerated learners: (4) various content area applications including fields such as English, health sciences, languages, and social studies: (5) developmental efforts such as PLATO, TICCIT, and others concerned with teacher training: (6) basic research in computer assisted instruction: and (7) conference proceedings on computers in education. An author index is included as well as information for ordering ERIC documents. (BK)

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ED195288

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COMPUTER-BASED EDUCATION

The Best of ERIC June 1976 - August 1980

by

Keith A. Hall

November 1980

ERIC Clearinghouse on Information Resources
Syracuse University
Syracuse, New York

IR009152

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Prior publications from ERIC/IR on this topic are:
Computer Assisted Instruction: The Best of ERIC 1973-May 1976
by Marian Beard (ED 125 608). August 1976.
The Best of ERIC: Recent Trends in Computer-Assisted Instruction
by Richard Clark (ED 076 025). 1973.

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INTRODUCTION

ERIC documents and journal articles on computer based education (CBE) have been selected for this bibliography from the wealth of materials either entered in the ERIC files or indexed in Current Index to Journals in Education since May 1976, and deal with such facets of CBE as tutorials, drill, and simulation. Since the literature crosses these facets in a manner that would make an arrangement in such categories less than useful, another approach has been used in organizing this bibliography. Both the types of instruction covered and the subject categories used are discussed in this introduction.

Parameters of CBE

The term CBE, rather than computer-assisted instruction (CAI), is used purposely so as to encompass a broader spectrum of computer applications than CAI, which has come to mean primarily tutorial instruction. CBE employs the power and flexibility of a computer to provide instruction to learners via terminals or microprocessors, and is used here to include computer managed instruction, interactive instruction, and instructional simulations. Although student use of the computer for problem solving as part of the assigned coursework is clearly computer-assisted instruction, it is sufficiently different that it is excluded from discussion in this paper.

Each of the instructional techniques (management, interactive instruction, and simulation) employs the computer in a different role in the instructional process. Computer managed instruction relies principally on the record-keeping and summarizing power of the computer. Interactive instruction, which subsumes the concepts of tutorial instruction and drill and practice, presents instructional material to the learner, accepts and judges responses from the learner, provides feedback, and alters the instruction based upon the learner's responses. Simulation allows the student to access and manipulate pools of data in an environment that approximates reality. The instructional techniques (management, interactive instruction, and simulation) are arranged in an ascending hierarchy (from left to right in Figure 1) which reflects the increasing complexity of both instructional tasks and learning tasks as the learner moves from the acquisition of knowledge to the use and integration of knowledge. The locus of control shifts from the computer to the learner as the learner moves through the stages of learning. The shift from the computer to the learner is also reflected by the terms used to identify the instructional functions; i.e., the instructional functions in management describe the functions performed by the computer, while the instructional functions in simulation describe functions performed by the learner. The locus of control in interactive instruction is shared by the computer and the learner and the terms describing those functions reflect the shared control.

Although the factors of terminal/computer complexity, development time, and student time on terminal (Figure 2) have minimal importance for curricular and instructional decision making, they are of central importance for administrative planning because of their impact on costs.

	CBE Instructional Techniques		
	Management	Interactive Instruction	Simulation
Instructional Functions	Assess Diagnose Prescribe Monitor	Present Practice Feedback Consolidate Learning Enhance Retention	Apply Analyze Synthesize Integrate
Stages of Learning	Acquisition of Knowledge		
		Use of Knowledge	
Locus of Control	Computer		
		Learner	
Historical References	Baker, 1971 Mitzel, 1974	Fletcher, 1975 Glaser, 1976 Jamison, Suppes, and Wells, 1974 Merrill and Boutwell, 1972 Vinsonhaler and Bass, 1972	Greenblat, 1975 Rosenfeld, 1975

Figure 1. CBE Instructional Techniques and Instructional Factors.

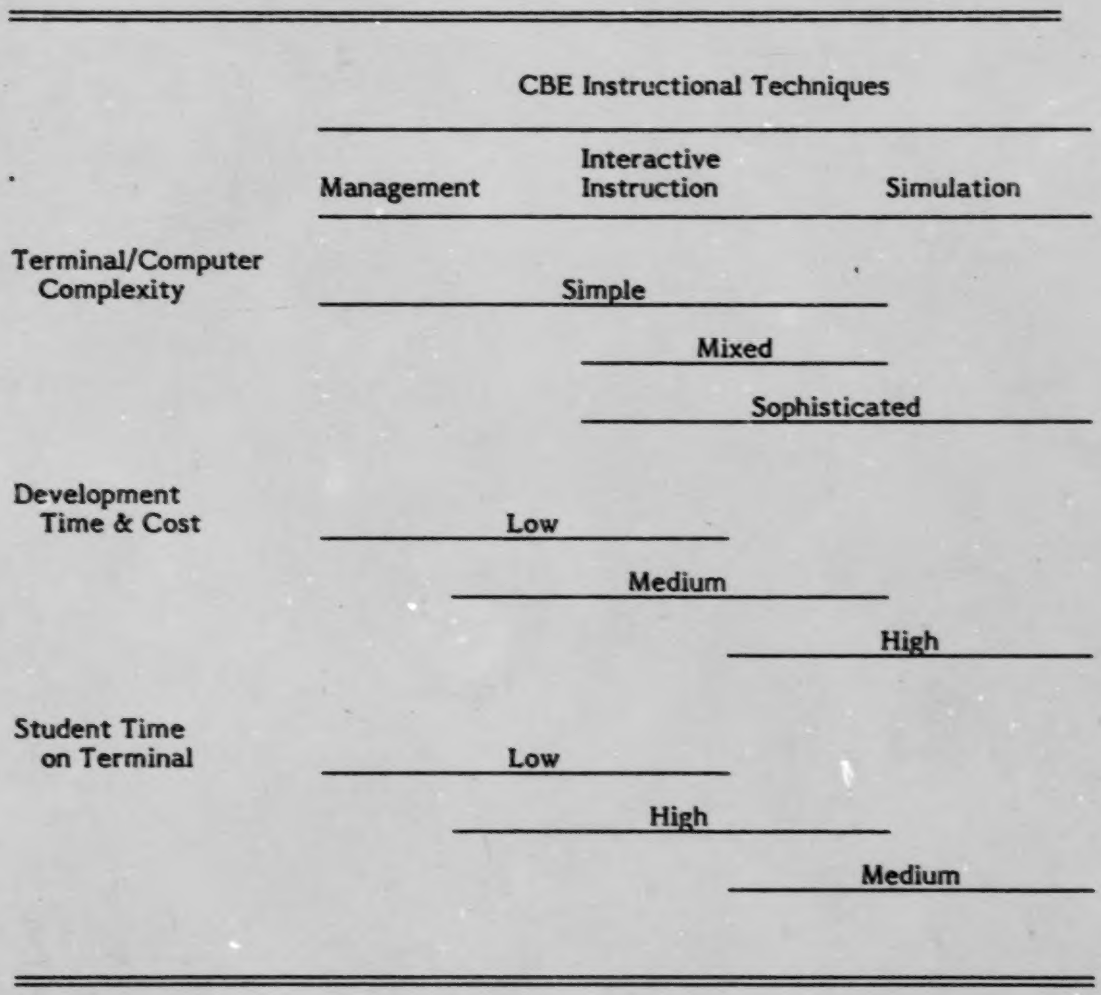
CBE Instructional Techniques
Management
Interactive Instruction
Simulation
Terminal/Computer Complexity
Simple
Mixed
Sophisticated
Development Time & Cost
Low
Medium
High
Student Time on Terminal
Low
High
Medium

Figure 2. CBE Instructional Techniques and Administrative Factors.

Viability of CBE

Several factors indicate the continuing viability of CBE: its increased use despite the reduced level of federal funding over the last decade; faculty acceptance, as evidenced by the formation of CBE interest groups within national organizations; and perhaps most importantly, student acceptance, as indicated by increased enrollments in courses that utilize CBE. Student acceptance can be attributed to the following features of CBE: (1) "no nonsense" learning environment, (b) predetermined scope and sequence of individually adaptive programs (no "surprises" midway through the course), (c) student-selected schedule and pace, (d) students' control of their own progress, and (e) impartial judgments of student progress.

Overview of the Bibliography

Steady advances in technology--both hardware and software, expanded use for new audiences and in a growing variety of content areas, continuing developmental efforts and basic research, and a growing literature have suggested six major topics around which the bibliography has been organized.

New Technology for CBE has evolved from earlier basic research in instruction, the educational use of computers, computer technology, and related fields. Significant contributions have been published in the areas of

artificial intelligence,
audio input/output devices,
author languages,
graphics,
microprocessors, and
videodiscs.

New Audiences served include

adult, off-campus learners,
handicapped learners, and
incarcerated learners.

Many of the included references have demonstrated the feasibility of off-campus instruction with (now) outmoded equipment. Technological advancements (multisensory input and output devices, and stand-alone microprocessors) will further expand the availability of educational opportunity to new audiences.

Content Area Applications are highlighted, not only to show the widespread applicability of CBE technology, but also to call special attention to the persons actively involved in CBE in specific content areas. A powerful mechanism for promoting the development and use of CBE materials is to encourage the formation of content-oriented special interest groups within national organizations. Familiarity with the work of active colleagues across the nation is the logical starting point.

Content applications include the following:

agriculture,
basic skills,
economics,
English,
guidance and counseling,
health sciences,
languages,
law,
mathematics/computer science/data analysis/statistics,
music,
reading,
science, and
social studies.

Developmental Efforts of significant scope include the following:

PLATO,
TICCIT, and
Training Teachers in Uses of Computers.

Basic Research reports are included in two categories:

problems and
miscellaneous.

The nature of this bibliography does not lend itself to an extended treatise on the scope of variables found in CBE research. However, selected references are included.

Collections included published proceedings from conferences related to CBE. At the time of publication, proceedings frequently contain the most current work in the field--yet they cannot be easily sorted into the categories used in this bibliography. For example, the collections include proceedings from:

Association for the Development of Computer-based Instructional Systems (ADCIS) Conferences,
Association for Educational Data Systems (AEDS) Conferences,
Conferences on Computers in the Undergraduate Curricula, and
National Educational Computing Conference (NECC).

HISTORICAL REFERENCES

Computer-Managed Instruction

Baker, F. B. Computer-based instructional management systems: A first look. *Review of Educational Research*, 1971, *41*(1), 51-70.

Mitzel, H. E. (Ed.) *An examination of the short-range potential of computer-managed instruction: Conference proceedings*. University Park: The Pennsylvania State University, 1974.

Interactive Instruction

Fletcher, J. D. Modeling the learner in computer assisted instruction. *Journal of Computer-Based Instruction*, 1975, *1*(4), 118-126.

Glaser, R. Components of a psychology of instruction: Toward a science of design. *Review of Educational Research*, 1976, *46*(1), 1-24.

Jamison, D., Suppes, P., & Wells, S. Effectiveness of alternative instructional media. *Review of Educational Research*, 1974, *44*(1), 1-67.

Merrill, M. D., & Boutwell, R. C. *Instructional development: Methodology and research* (Working Paper No. 33). Provo, Utah: Brigham Young University, Department of Instructional Research and Development, May 1972.

Vinsonhaler, J. & Bass, R. A summary of ten major studies of CAI drill and practice. *Educational Technology*, 1972, *12*(12), 29-32.

Instructional Simulation

Greenblat, C. S. Teaching with simulation games: A review of claims and evidence. In C. S. Greenblat & R. D. Duke (Eds.), *Gaming-simulation: Rationale, design, and applications*. New York: Wiley, 1975.

Rosenfeld, F. H. The educational effectiveness of simulation games: A synthesis of recent findings. In C. S. Greenblat & R. D. Duke (Eds.), *Gaming-simulation: Rationale, design, and applications*. New York: Wiley, 1975.

ORGANIZATION OF THE BIBLIOGRAPHY

ERIC documents, journal articles, and other items cited in this bibliography are arranged in subject categories and alphabetized by author within each category. If no personal author is named, the sponsoring agency (corporate author) is used and, if neither is cited, the title.

An exception has been to keep together journal articles which appeared in special issues. They are listed individually as they are indexed in Current Index to Journals in Education (CIJE) and alphabetized by author within the set. The set is then listed by the author of the first article cited. A second exception is the listing of conference proceedings for a single organization in chronological order.

Subject categories and their subdivisions are listed in the table of contents, and the author index lists all authors whose names appear in the bibliographic citations. Note: In the ERIC system, the first personal author is always listed, together with the second of two authors. However, if there are more than two, only the first is named, followed by "And Others."

Annotations and abstracts used for ERIC materials appear, for the most part, as they were printed in Resources in Education (RIE) and CIJE, and bibliographic citations for items not in the ERIC system follow this format in the main bibliography.

ERIC Documents

Each ERIC document is identified by a unique ED number which is used to locate the announcement in RIE, the text of the original document in the microfiche collection, or to order microfiche (MF) or paper copy (PC) of the original from the ERIC Document Reproduction Service (EDRS). The occasional ERIC document which is not available from EDRS is usually copyrighted, and an alternate source is provided with the abstract. Such documents are not included in the microfiche collection.

The number opposite the ED number identifies the clearinghouse that processed the document; e.g., IR is the 2-letter code for this clearinghouse, CS indicates the ERIC Clearinghouse on Reading and Communication Skills, and SE stands for the ERIC Clearinghouse for Science, Mathematics, and Environmental Education. A complete list appears on the inside back cover of the monthly issues of RIE.

The document type provided for recent ERIC documents and articles was implemented in July 1979, and the corresponding number is used in computer searching. The brief explanation of the code given these abstracts is the version used by the DIALOG Information Retrieval Service.

Prices for reprints from EDRS are provided in code for each ERIC document, and a table for converting these codes to the prices current at the time of printing appears on the sample order blank at the end of this book.

Journal Articles

Each journal article indexed in CIJE has a unique EJ number, which should be used in ordering reprints from University Microfilms International (UMI). Since UMI cannot offer this service for all journals indexed in CIJE, such availability is indicated for each individual article with the annotation. For information on ordering and current prices, consult a recent issue of CIJE.

BIBLIOGRAPHY

New Technology: Artificial Intelligence

ED152277 IR005736

A Paradigmatic Example of an Artificially Intelligent Instructional System.
Brown, John Seely; Burton, Richard R.
Bolt, Beranek and Newman, Inc., Cambridge, Mass.
Jun 1977 27p.
Sponsoring Agency: Advanced Research Projects Agency (DOD), Washington, D.C.
EDRS Price - MF01/PC02 Plus Postage.
Document Type: RESEARCH REPORT (143)

This paper describes the philosophy of intelligent instructional systems and presents an example of one such system in the domain of manipulative mathematics--BLOCKS. The notion of BLOCKS as a paradigmatic system is explicated from both the system development and educational viewpoints. From a developmental point of view, the modular design of BLOCKS provides a working framework within which to explore different monitoring functions and various tutoring strategies. From an educational viewpoint, BLOCKS provides a dramatic example of the potential of a computerized intelligent tutor in a laboratory environment. By monitoring the student's behavior, the system can notice interesting situations and direct the student's attention to them. In this way, the computer can provide conceptual structure and guidance to a student's otherwise undirected experiences. (Author/VT)

ED143371 IR005161

Intelligent Instructional Systems in Military Training.
Fletcher, J.D.; Zdybel, Frank
Apr 1977 17p.; Paper presented at the annual meeting of the American Educational Research Association (New York, New York, April 1977)
EDRS Price - MF01/PC01 Plus Postage.
Document Type: CONFERENCE PAPER (150)

Intelligent instructional systems can be distinguished from more conventional approaches by the automation of instructional interaction and choice of strategy. This approach promises to reduce the costs of instructional materials preparation and to increase the adaptability and individualization of the instruction delivered. Tutorial simulation and tutorial dialogue capabilities require a computer to: (1) generate problem statements and solutions; (2) determine efficient sequences; and (3) simulate a variety of situations encountered on the job. These enable students to: (1) test their own hypotheses concerning the subject matter; (2) probe for information at different levels of difficulty and abstraction; (3) acquire wide experience in minimum time; (4) obtain instructional material generated for their unique abilities and needs; (5) receive instructional aids for partially completed solutions; and (6) receive reviews and critiques of completed problem solutions. Description of the Welfare Effectiveness Simulation (WES) in military training, directions for development of intelligent instructional systems, and references are included. (Author/KP)

ED152294 IR005775

The Relevance of AI Research to CAI.

Kearsley, Greg P.

Alberta Univ., Edmonton. Div. of Educational Research Services.

Feb 1977 25p.; Best copy available

EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

This article provides a tutorial introduction to Artificial Intelligence (AI) research for those involved in Computer Assisted Instruction (CAI). The general theme is that much of the current work in AI, particularly in the areas of natural language understanding systems, rule induction, programming languages, and socratic systems, has important applications to CAI. A recommendation for more planned interaction between AI and CAI includes possibilities for joint conferences and joint research projects. (Author/VT)

ED175436 IR007602

Modeling User Behavior in Computer Learning Tasks.

Mantei, Marilyn M.

2 Apr 1979 29p.; Paper presented at the Annual Conference of the American Educational Research Association (San Francisco, California, April 8-12, 1979)

Sponsoring Agency: Advanced Research Projects Agency (DOD), Washington, D.C.; Office of Naval Research, Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.

Language: English

Document Type: RESEARCH REPORT (143); CONFERENCE PAPER (150)

Model building techniques from Artifical Intelligence and Information-Processing Psychology are applied to human-computer interface tasks to evaluate existing interfaces and suggest new and better ones. The model is in the form of an augmented transition network (ATN) grammar which is built by applying grammar induction heuristics on a sequential record of a user's interaction with a computer system. A computer-aided instruction experiment is described which illustrates the model building technique. Variations in the task presentation are constructed in the ATN grammar and used to pinpoint interface design problems. (Author/RAO)

ED178072 IR007815

Studies of Learning and Self-Contained Educational Systems, 1976-1979. Final Report No. 7902.

Norman, Donald A.

California Univ., San Diego. Center for Human Information Processing.

Jun 1979 20p.; For related document, see ED 140 821

Sponsoring Agency: Office of Naval Research, Arlington, Va. Personnel and Training Research Programs Office.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: PROJECT DESCRIPTION (141)

The studies summarized in this report on instructional theory and computer based tutorial systems were directed at two aspects of the study of learning and instruction: the theoretical understanding of human memory and the development of intelligent interactive computer systems for instruction. Two major computer-based tutorial systems developed by the project--Coach and Instruct--are discussed. (RAO)

ED145837 IR005278

Generative Computer-Assisted Instruction and Artificial Intelligence. Report No. 5.

Sinnott, Loraine T.
Educational Testing Service, Princeton, N.J.
Oct 1976 31p.
Sponsoring Agency: Advanced Research Projects Agency (DOD), Washington, D.C.
EDRS Price - MF01/PC02 Plus Postage.
Document Type: BIBLIOGRAPHY (131)

This paper reviews the state-of-the-art in generative computer-assisted instruction and artificial intelligence. It divides relevant research into three areas of instructional modeling: models of the subject matter; models of the learner's state of knowledge; and models of teaching strategies. Within these areas, work sponsored by Advanced Research Projects Agency (ARPA) plays a prominent role in theoretical advances. ARPA sponsored research has concentrated both on the development of instructional systems teaching subjects like programming and problem solving, and on research basic to the improvement of adaptive instructional systems in general. The review concludes that as a CAI system becomes more responsive to natural language input, the number of extraneous skills a student must develop in order to interact with the program decreases. Also, providing an author with the opportunity to interact with the computer in natural language lessens the time required to create CAI materials, as well as the constraints imposed on those materials by working in a programming language. (Author)

New Technology: Audio Input/Output Devices

ED163971 IR006644

Research on Uses of Audio and Natural Language Processing in Computer-Assisted Instruction—Third Year Report. Technical Report No. 289.

Laddaga, Robert; And Others
Stanford Univ., Calif. Inst. for Mathematical Studies in Social Science.
23 Sep 1977 89p.; For related documents, see IR 006 644-647
Sponsoring Agency: National Science Foundation, Washington, D.C.
EDRS Price - MF01/PC04 Plus Postage.
Document Type: RESEARCH REPORT (143)

Research carried out during the year focused on meeting project objectives in three main areas: computer-generated speech, complex teaching programs with audio, and teaching reading with audio. Work on computer-oriented speech was concerned with improving the facilities and procedures for utilizing the speech system software and the Micro Intoned Speech Synthesizer ("MISS machine"), as well as the continued development and improvement of sentential synthesis through intonation contouring with word concatenation. In the three complex teaching programs studied, work included the completion of the writing of audio and display only versions of lessons in a portion of the logic course, improving the interface with curriculum and lessons for the proof theory course. In the area of teaching beginning reading, a study in which three systems of computer-generated speech were compared to each other and a human-voice control on the task of producing individual letter sounds was designed and conducted with a group of first graders as subjects. A comparison of the three systems on a more complete list of sounds was carried out with fifth grade students. Experimental objectives, procedures, and results are detailed for each area, and a bibliography is provided. (BBM)

New Technology: Author Languages

ED154774 IR005740

Summary of TUTOR Commands and System Variables. Sixth Edition.
Avner, Elaine
Illinois Univ., Urbana. Computer-Based Education Lab.
Sep 1977 130p.; For related document, see ED 124 130
Sponsoring Agency: National Science Foundation, Washington, D.C.
EDRS Price - MF01/PC06 Plus Postage.
Document Type: MISCELLANEOUS (999)

This summary is intended for the experienced author who needs a quick reference for the form of a tag and for the restrictions on the TUTOR language commands. Each command includes a brief description of its purpose and a description of the tag. The commands are grouped into the following categories: (1) calculating, (2) data keeping, (3) judging, (4) managing sites, (5) presenting, (6) routing, and (7) sequencing. The appendices include a list of the limits associated with commands and alphabetical lists of systems variables and commands. (DAG)

ED161412 IR006249

NATAL-74; First Results.
Brahan, J. W.; Westrom, M. L.
Mar 1978 12p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related documents, see IR 006 231 and 006 611
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: CONFERENCE PAPER (150)

NATAL is a high-level programming language designed to meet the requirements of the course author in the preparation of Computer Assisted Learning (CAL) materials. The basis for its design is found in the functional specification published by the National Research Council's Associate Committee on Instructional Technology; developers of the language also relied heavily on the 1969 EDUCOM report by Zinn, using his "aspects" for comparing programming languages as the basis for the definition of language requirements. The NATAL-74 project is outlined as follows: design goals, characteristics, implementations (course preparation system, file system, and run-time system), and preliminary evaluation. Education 491, a course on computers in secondary education, is taught to final-year education majors at the University of British Columbia. Six students from this course were permitted to do the NATAL-74 assignment, consisting of the construction of drill and practice programs in basic mathematics, rather than using a more limited CMI system. Results from this trial and other sources suggest that NATAL-74 meets the programming language requirements for CAL applications and can be an effective vehicle for the transfer of courseware between installations. (VT)

ED183202 IR008146

Common PILOT Manual. The Illinois Series on Educational Applications of Computers, Number 34.
Cox, John P.
Illinois Univ., Urbana. Dept. of Secondary Education.
Jul 1979 36p.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

This manual presents an overview of the PILOT educational computer language, a simplified teacher-directed alternative to the use of BASIC for designing computer assisted instruction, and provides examples to illustrate its features. These features are described in terms of format, labels, numeric variables, alphanumeric variables, system variables, expressions and operators, functions, op-codes or commands, entering PILOT programs on the Horizon computer system, and running PILOT programs. Appendices describe proper use of vectors or arrays in PILOT programs, and exponential notation and ASCII code. (MV)

ED161418 IR006258

CBES—An Efficient Implementation of the Coursewriter Language.

Franks, Edward W.

Mar 1978 9p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

An extensive computer based education system (CBES) built around the IBM Coursewriter III program product at Ohio State University is described. In this system, numerous extensions have been added to the Coursewriter III language to provide capabilities needed to implement sophisticated instructional strategies. CBES design goals include lower CPU usage per student interaction, fewer disk accessions per student interaction, all existing course materials to operate without alteration, system modifications to be transparent at the student level, standard Coursewriter III authoring capabilities to be maintained, and provision for enhancements to be made where practical. Other sections of the paper are concerned with system operation logic, distribution of processing, redundant processing, reducation of disk activity, locating and retrieving information, implementation, and enhancements. (VT)

ED163972 IR006645

VOCAL: Voice Oriented Curriculum Author Language. Technical Report No. 291.

Hinckley, Michael; And Others

Stanford Univ., Calif. Inst. for Mathematical Studies in Social Science.

19 Oct 1977 47p.; For related documents, see IR 006 644-647

Sponsoring Agency: National Science Foundation, Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: RESEARCH REPORT (143)

VOCAL (Voice Oriented Curriculum Author Language) is designed to facilitate the authoring of computer assisted curricula which incorporate highly interactive audio and text presentations. Lessons written in VOCAL are intended to be patterned after the style of informal classroom lectures. VOCAL contains features that allow the author to specify audio messages in several formats acceptable to the audio hardware and associated software, and to control the interaction of the audio presentation with material presented visually on the screen of a CRT terminal. This description of VOCAL includes an elaboration of its features, the Browse Mode, the Help System, and operation of the VOCAL Compiler and Interpreter. Appendices include a file format for compiled VOCAL files and implementations of the S Opcode. (CMV)

ED176801 IR007788

Computer-Assisted Instruction Using BASIC.

Huntington, John F.

Educational Technology Publications, Englewood Cliffs, N.J.

1979 240p.

Available from: Educational Technology Publications, Englewood Cliffs, New Jersey 07632 ($14.95)

Document Not Available from EDRS.

Document Type: BOOK (010); CLASSROOM MATERIAL (050); BIBLIOGRAPHY (131)

This book providing direction for the planning, designing, and writing of programs for computer assisted instruction (CAI) includes chapters on the role of computers in instruction, the BASIC programing language, flowcharting, terminal commands, displaying instruction, dialogues, learning theories, the process of instruction, and the planning of instruction. Each chapter contains an annotated bibliography of reference readings. The appendix provides descriptions with examples of the EDPOL, NUMB, STD-RESUTL, NS, and PEOPLE programs, which can be implemented as task management procedures in a CAI/CMI system. (CMV)

New Technology: Graphics

ED169917 IR007203

The Educational Effectiveness of Graphic Displays for Computer Assisted Instruction. Final Report.

Moore, M. V.; Nawrocki, L. H.

Army Research Inst. for the Behavioral and Social Sciences, Arlington, Va.

Sep 1978 56p.

Sponsoring Agency: Office of the Deputy Chief of Staff for Personnel (Army), Washington, D.C.

EDRS Price - MF01/PC03 Plus Postage.

Document Type: REVIEW LITERATURE (070)

This report reviews the literature on instructional graphics and implications of the findings in terms of graphic displays for computer assisted instruction. It was concluded that assumptions about the inherent value of graphics for instructional purposes are unsubstantiated by empirical evidence, and the conditions under which the use of graphics may increase instructional effectiveness remain to be determined. Comparisons between alphanumeric and graphic displays and between different graphic representations suggest that future research should systematically explore the use of graphics as a function of task requirements, subject matter content, and learner characteristics. The research also suggests that the interpretation of research outcomes is contingent upon the dependent measures obtained and that particular attention should be given to measures of delayed retention. (Author)

ED178057 IR007799

The Instructional Effectiveness of Three Levels of Graphics Displays for Computer-Assisted Instruction.

Moore, Martha V.; And Others

Army Research Inst. for the Behavioral and Social Sciences, Arlington, Va.
Apr 1979 23p.
Sponsoring Agency: Office of the Deputy Chief of Staff for Personnel (Army), Washington, D.C.
EDRS Price - MF01/PC01 Plus Postage.
Document Type: EVALUATIVE REPORT (142)

This study compares the effectiveness of three types of computer graphics display for computer-assisted instruction in (1) low level (boxed alphanumerics and schematics), (2) medium level (line drawings), and (3) high level (line drawings plus animations). Three groups of 30 enlisted personnel at the Engineering School and the Defense Mapping School, Fort Belvoir, Virginia, studied a computer-assisted instructional lesson on the psychophysiology of audition. Upon lesson completion, retention of four knowledge categories addressed in the CAI lesson were tested. Groups did not differ in their performance on the final retention tests or in lesson completion time. Findings indicate that the addition of more realistic and sophisticated graphics displays in a CAI lesson do not insure an increase in instructional effectiveness but point out the need to determine principles and guidelines for the use of graphics in computer-based training. (Author)

New Technology: Microprocessors

EJ189068
CAI Debut in the World of General Software
Attala, Emile
Journal of Computer-Based Instruction, 3, 4, 103-6 1977
Reprint Available: UMI

Discusses CAI as part of the general software distributed with a recently announced portable computer. A brief history of software for small computers is presented, architecture and functional capabilities of the computer are covered, and software support for CAI is described. (RAO)

EJ189071
Utilization of Educationally Oriented Microcomputer Based Laboratories
Fitzpatrick, Michael J.; Howard, James A.
Journal of Computer-Based Instruction, 3, 4, 123-6 1977
Reprint Available: UMI

Describes one approach to supplying engineering and computer science educators with an economical portable digital systems laboratory centered around microprocessors. Expansion of the microcomputer based laboratory concept to include Learning Resource Aided Instruction (LRAI) systems is explored. (Author)

EJ189069

SAL—A Simple Author Language for a Minicomputer Assisted Instruction System
Henry, Robert D.; Howard, James A
Journal of Computer-Based Instruction, 3, 4, 107-14 1977
Reprint Available: UMI

A multimedia CAI system developed by the Navy's Systems Test Equipment Program is described. Courseware and courseware aids are presented, including Simple Author Language, which was designed to facilitate CAI program development by nonprogramming instructors. Automatic CAI program generation facilitating courseware transportability between different computer resources is reported. (RAO)

EJ189070

Maxi Authoring Languages in the Era of the Mini
Lower, Stephen K.
Journal of Computer-Based Instruction, 3, 4, 115-22 1977
Reprint Available: UMI

It is argued that the need for inadequate languages, those "simplified" languages that are scaled down to the limits of the present-day small computer, will soon disappear. Utilization of an extensive language base, even if it is developed on computers exceeding the capabilities of the target minis is suggested. (Author/RAO)

EJ223569

The Role of Personal Computer Systems in Education.
Bork, Alfred; Franklin, Stephen D.
AEDS Journal, v13 n1 p17-30 Fall 1979
Reprint: UMI
Document Type: JOURNAL ARTICLE (080); POSITION PAPER (120)

Reviews the role of computers, particularly the personal computer, in the learning process, discusses the many ways of using the computer to assist learners, and considers the advantages of personal computers over time-sharing computers. (Author/IRT)

EJ183758

The UCSD PASCAL Project
Bowles, Kenneth L.
EDUCOM Bulletin, 13, 1, 2-7 1978

Small stand-alone microcomputers can serve as the basis for running a sophisticated general-purpose interactive software system capable of supporting such interactive tasks as computer assisted instruction, word processing, and data processing, as well as other software development. A successful system using the PASCAL programing language is described. (Author/CMV)

EJ212775

Some Bases for Choosing a Computer System: Suggestions for Educators.

Braun, Ludwig

Journal of Educational Technology Systems, v8 n1 p7-30 197 1979

Document Type: JOURNAL ARTICLE (080); EVALUATIVE REPORT (142)

This guide in the selection of instructional computer systems compares four systems representing different cost categories in terms of 25 parameters. Costs and benefits of each system are enumerated, and problems associated with cost benefit analysis are discussed. (Author/JEG)

EJ214696

The Symbiosis of PLATO and Microcomputers.

Brenner, Lisa P.; Agee, C. Coe

Educational Technology, v19 n10 p45-53 Oct 1979

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)

Presents a case for the integration of stand-alone microcomputers into the educational environment through time-sharing networks utilizing medium to large-scale central computer facilities. The PLATO system is used to illustrate the evolution of distributed processing in the computer-based education environment. (Author)

ED160083 IR006242

Maxi CAI with a Micro.

Gerhold, George; And Others

Mar 1978 12p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

This paper describes an effective microprocessor-based CAI system which has been repeatedly tested by a large number of students and edited accordingly. Tasks not suitable for microprocessor based systems (authoring, testing, and debugging) were handled on larger multi-terminal systems. This approach requires that the CAI language used on the microprocessor-based system either be identical to the language used on the authoring system or be a subset of that language. WTS-PILOT-BASIC, described in the appendix, is the current language combination developed and used in the system. The resulting system is available in two versions: one which implements all of WTS PILOT and BASIC with floating point, the four arithmetic operations, two-dimensional numeric arrays, and the standard set of BASIC string operations; and a full version with a complete set of scientific functions, string arrays, and disk-read and disk-write capabilities. (VT)

EJ214647

A Beginner's Guide to Microcomputer Resources.

Goldberg, Albert L.

Audiovisual Instruction, v24 n8 p22-23 Nov 1979

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); BIBLIOGRAPHY (131)

Presents a compilation of books, journals, and newsletters related to microcomputers, and a list of manufacturers of microcomputers. (Author/CMV)

ED160082 IR006241

A Microprocessor Based CAI System with Graphic Capabilities.

Mabry, Frank J.; And Others

Mar 1978 19p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

This paper describes a system which operates on an independent basis as well as connected to communications network, e.g., PLATO and ASCII based communication systems. The system also has facilities for local production and use of PILOT lessons, for support of a generalized programming language (NSBASIC), and for development of graphic sequences. The following topics are discussed: background, NSBASIC, microprocessor-supported PILOT, graphic source generation, sized writing and user defined special characters, and programming support. A description of the hardware features is appended as well as the language guide, programming notes, and programming options for NSBASIC. (VT)

ED178054 IR007796

A General Introduction to Microcomputers.

Muiznieks, Viktors

Illinois Univ., Urbana. Dept. of Secondary Education.

Nov 1978 19p.; The Illinois Series on Educational Applications of Computers, No. 26; For related documents, see IR 007 782, IR 007 845, and ED 142 199.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

This basic introduction to microcomputers provides the neophyte with the terminology, definitions, and concepts that explain the microcomputer and computing technology in general. Mathematical operations with binary numbers, computer storage, controlling logic, and the concepts of stack and interrupt are explained. (RAO)

EJ214695

Programming Languages for Microprocessor Courseware.

Schuyler, James A.

Educational Technology, v19 n10 p29-35 Oct 1979

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); INSTRUCTIONAL MATERIAL (051)

Suggests criteria for choosing a programing language in courseware development. Authoring languages (PILOT, TUTOR, BASIC, and PASCAL) are compared; driver programs' compilers and interpreters are discussed; and the tasks of an authoring system are presented. (RAO)

A Selected List of Persons and Centers Active in Microcomputer Usage for Education.

Educational Technology; v19 n10 p67 Oct 1979

Lists 13 people known to be actively working with microcomputers who can be contacted to learn about current applications in several subject areas.

Microcomputers in Education: A Selection of Introductory ARticles.
Sledge, D., Comp.
London: Council for Educational Technology.
1979
Available from CET, 3 Devonshire St., London W1N 2BA (2 British pounds)

The 14 articles included in this publication give a general introduction and provide background reading on microcomputers in education. Aspects covered include the nature of the microcomputer, its management and potential uses; types and capability of equipment; purchase and running costs; various languages; and available software.

EJ223572
Selecting Microcomputers for the Classroom.
Thomas, David B.; McClain, Donald H.
AEDS Journal, v13 n1 p55-68 Fall 1979
Reprint: UMI
Document Type: JOURNAL ARTICLE (080); NON-CLASSROOM MATERIAL (055); TEACHING GUIDE (052)

Outlines a model that will help teachers perform the prerequisite activities necessary for the specification of a microcomputer system that will meet present and future instructional computing needs. (Author/IRT)

New Technology: Videodiscs

ED154839 IR006039
Microcomputers and Video Disc Systems: Magic Lamps for Educators?
Braun, Ludwig
State Univ. of New York, Stony Brook.
1977 77p.
Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.
EDRS Price - MF01/PC04 Plus Postage.
Document Type: RESEARCH REPORT (143)

Evaluated is the present state of development of microcomputer and videodisc technologies as they relate to education. Factors which inhibit the entry of these technologies into education are identified, and include teacher preparation, availability of courseware, and cost. Areas are identified and strategies suggested in which federal and private agencies can have a positive impact in the development and implementation of these technologies. Appendices include a list of individuals and groups contacted for information on technological development, references, and the author's relevant experience. (Author/CMV)

ED157516 IR006040
Motivations and Deterrents to Educational Use of "Intelligent Videodisc" Systems.
Eastwood, Lester F., Jr.
Washington Univ., St. Louis, Mo. Center for Development Technology.
12 Jan 1978 57p.; Best copy available
Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.

EDRS Price - MF01/PC03 Plus Postage.
Document Type: RESEARCH REPORT (143)

The "intelligent videodisc"--a combination of advanced microprocessor, display, and storage technology--holds the potential for developing into a powerful instructional delivery system. In an inexpensive package, it could combine advanced computer-aided instruction (CAI) software power and display capability for audio, video, and textual programming. Although it is attractive technically, this system's real contribution will be that CAI will fit the institutional structure of education for the first time. In contrast to existing CAI systems, this small-scale device could be purchased locally. Another unique attribute of this technology is its potential attractiveness to consumers. Despite these advantages, this new technology will face some of the same traditional barriers that have doomed other systems. It is likely that many teachers will retain their unwillingness to innovate using technology. Tight budgets will remain because of shrinking student populations and voter apathy. High cost might restrict software availability. (Author/VT)

ED153636 IR005976

The Promise and Inevitability of the Videodisc in Education.
Heuston, Dustin H.
1 Sep 1977 99p.
Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.
EDRS Price - MF01/PC04 Plus Postage.
Document Type: RESEARCH REPORT (143)

Videodisc technology carries great promise for coping with current and future educational problems, and advancements in the area of individualized instruction have proven effective in dealing with educational problems where large scale efforts based upon traditional methods have met with little success. Individualized videodisc instruction has the instructional strengths of books, motion pictures and television, and the computer. With further advancements in its technology and public use, the videodisc can become a highly cost effective method of instruction; however, government support through the funding of technological research and implementation programs is crucial for the advancement of this valuable educational resource. This paper includes descriptions of technical aspects of the videodisc, as well as brief discussions of the strengths and weaknesses of various educational technologies, cost analysis for interactive courseware, and a bibliography. (CMV)

New Audiences: Adult, Off-Campus Learners

ED150320 CE014465

CADE—A System for Computer-Assisted Distance Education: Development, Design, and Evaluation of the System.
Baath, John A.; Mansson, Nils-Ove
Hermods School, Malmo (Sweden).
Apr 1977 62p.; Appendexes may reproduce poorly
Sponsoring Agency: Swedish Board of Technical Development, Stockholm.
EDRS Price - MF01/PC03 Plus Postage.
Document Type: PROJECT DESCRIPTION (141)

A three-stage, computer-assisted distance education (CADE) project was undertaken to design a prototype of CADE that would improve the two-way communication in correspondence education in three respects: (1) the quality of the tutors' comments as to feedback effectiveness and motivational aspects, (2) the turn-round time of students' solutions to assignments, and (3) the quality of assignments. In the first two stages of the development work, the parts of the computer-assisted correspondence instruction were simulated by means of an optical reader and an operator at an automatic typewriter. The third stage involved developing and evaluating a real computer-assisted distance tutoring system and studying experimentally the effects of explicitly informing part of the students about the role of the computer in the teaching system. The final outcome is a system where the students' solutions are corrected by an optical reader. The results are analyzed by a computer which types out individualized comment letters to the students. The results of evaluating the system include the following: (1) Practical experience of the functioning of the system has been very positive, and (2) student responses to questionnaire items were positive regarding the answer forms, the turn-round time, the use of multiple choice as compared to traditional questions, and feedback comments. (EM)

ED153768 RC010492

Native Students Services. Fourth Evaluation Report, 1976-77.

Brooks, Ian R., Comp.; Moore-Eyman, E., Comp.

Calgary Univ. (Alberta). Office of Educational Development.

1977 136p.; For related document, see ED 129 545; Formerly the Indian Students University Program Services

Sponsoring Agency: Donner Canadian Foundation.

EDRS Price - MF01/PC06 Plus Postage.

Document Type: PROJECT DESCRIPTION (141)

The Native Students Services (formerly the Indian Students University Program Services) provided support and tutorial services and outreach programs to Indian students. During the 1976-77 program year, the basic plan of operation developed during the preceding four years was continued. Students came from all parts of the province, from north of Slave Lake to the Blood Reserve on the southern border of the province. Six more students graduated this year, including the first of the Outreach students. The Outreach Program included three years of University of Calgary courses taught on a reserve with the fourth year courses taken on the University campus. This publication presents the reports of the academic coordinator and the tutor/counsellor on the students' progress and the improvements of the Native Students Services; an account of the interviews conducted to evaluate the third year program for students from the Stoney Reserve and from Calgary who participated in an inter-cultural program at Morley; and detailed reports of the projects of the Office of Educational Development. The various reports discussed program funding, advisory committee, staff, student enrollment and academic achievement, facilities, course load, tutor/counselling services, the Achievement Test for Indian Children, the Computer Assisted Learning Project, the Compendium of Native-Oriented Education and Employment Training Programs, and a preliminary study of the locus of control in Canadian Indian children. (NQ)

ED180438 IR007905

Viewdata, Prestel, Teletext: Home TV and Scitel Science Magazine.

Cawkell, A. E.

1978 15p.

EDRS Price - MF01/PC01 Plus Postage.
Document Type: REVIEW LITERATURE (070)

This paper describes the development of textual information displays for home consumption on modified television receivers in Great Britain over the last few years, compares two systems in use there--Teletext and Viewdata--and discusses some future possibilities for such services in the U.S. as well as the U.K. British television equipment manufacturers are actively considering the connection of home computers to receivers which contain microprocessors to provide the reception of computer programs broadcast via the Teletext and Viewdata systems. A program, stored for as long as it may be needed in the receiver's existing page storage, is executed by the microprocessor, and the TV screen is used for display. Such an arrangement would enable a viewer to run-in whatever program he/she needs. Concurrently, the full power of access to very large information files via Prestel telephone service would be available to the viewer using the same all-purpose terminal. (Author/CMV)

ED160077 IR006236

The Lister Hill Center Plasma Terminal System and Implications for Medical Networks.

Goldstein, Charles M.; Ford, William H., Jr.

Mar 1978 16p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: CONFERENCE PAPER (150)

The Lister Hill National Center for Biomedical Communications has supported a program to develop a Plasma Terminal System for purposes of improving the effective delivery of computer based educational materials. This system, employing recent advances in microprocessing and storage technologies, will provide new alternatives for present users of computer assisted instruction networks. This paper presents an overview of the Plasma Terminal System, and discusses some implications for medical networks. (Author)

ED121281 IR003258

The Development and Utilization of Mobile CAI for the Education of Nurses in Remote Areas.

Hall, Keith A.

Pennsylvania State Univ., University Park. Computer-Assisted Instruction Lab.

Apr 1976 11p.; Paper presented at the Annual Meeting of the American Educatonal Research Association (San Francisco, California, April 19-23, 1976)

EDRS Price - MF01/PC01 Plus Postage.
Document Type: CONFERENCE PAPER (150)

In providing for inservice nursing educational opportunities, the obvious advantages of the computer-assisted instruction (CAI) mobile system are its inherent interactive quality and the flexibility of scheduling made available to those who are already working in a field. The rationale for the development of the system is based on the past and continuing success at Pennsylvania State in retraining inservice teachers via mobile CAI. Preliminary followup evaluation results have shown that teachers find the content useful and the delivery system very adaptable to their needs and would be willing to take additional courses by CAI. It is estimated that a single mobile van can facilitate 1,5000 three-credit course completions annually at a cost of approximately $60 per course or $20 per credit hour for a fully amortized computer and mobile laboratory. (Author/JY)

ED134234 IR004462

Interactive Computer-Based Education for Satellite Application.

Hall, Keith A.; Mitzel, Harold E.

Dec 1976 60p.; Paper presented at the Conference on Educational Applications of Satellites (Arlington, Virginia, February 2-3, 1977). For related documents, see IR 004 458- 468

Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.

EDRS Price - MF01/PC03 Plus Postage.

Document Type: CONFERENCE PAPER (150)

This paper describes a narrow-band satellite application for facilitating a Computer-Based Education Utility (CBEU). A review of computer uses in education is presented with an emphasis on interactive computer applied to instructional processes. An example of major use of the CBEU focuses on meeting the educational needs of handicapped children, first by inservice teacher education followed by direct instruction to handicapped children via CBEU. A plan is presented to provide a flexible "on-the-job" CBEU with a curriculum enabling inservice elementary teachers to learn how to teach mildly handicapped children. It would also create the opportunity to expand the curriculum for practicing teachers into other needed skill areas and eventually provide direct instructional service to handicapped children. A selected bibliography is also provided. (Author/WBC)

ED158741 IR006299

Continuing Health Education Through Computer Technology.

Held, Thomas H.; Kappelman, Murray M.

1976 11p.; Paper presented at the Health Education Medical Conference (Miami, Florida, 1976)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Computer assisted instruction is beginning to have an important role in the rapidly expanding field of continuing education for health science professionals. At the present time, there are 22 medical specialty boards, all of which require or are about to require some form of continuing medical education for re-certification, and studies are being conducted throughout the country to determine the feasibility of using computer based education for obtaining continuing education credits in the health sciences. Computerized clinical case simulations, which offer some interesting advantages over traditional forms of continuing education, can be accessed from Massachusetts General Hospital and Ohio State University on a 24-hour basis. The Health Education Network offers courseware to medical, nursing, and dental schools, hospitals, and health care institutions throughout the U.S. and Canada. The prospects of using computer technology to obtain continuing health education credit are very real and feasible compared to other means--the costs are reasonable, accessibility to computer based education systems is increasing, and the quality and quantity of computerized case simulations are rapidly improving. (Author/CMV)

ED139455 JC770274

Instruction for Distant Learners Through Technology.

Kelly, J. Terence; Anandam, Kamala

Jun 1977 16p.; Paper presented at the International Conference on Improving University Teaching (3rd, Newcastle-upon-Tyne, England, June 8-11, 1977)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Miami-Dade Community College's Open College allows students to enroll in classes, purchase course materials, and proceed through coursework at their own pace without having to go to a campus except for course examinations. Three major components of the distant learning program are audio, video, and print materials which are used in conjunction with a two-way, computer-based communication system. This system permits faculty/student dialogues in a written mode. A distant learning student responds to a faculty-designed questionnaire which assesses the student's progress at strategic points along a course of study, in both the cognitive and affective domains. Based on the responses obtained, a letter is returned to the student which contains an individualized "prescription for learning". The prescription, formulated by the instructor and transmitted to the student via computer, is based on the student's unique educational strengths and needs. As a result of this process, impersonal materials are utilized to deliver personalized instruction. Additionally, the student is able to act as the principal initiator of learning. A graphic model of the distant learning program is included as is a flow chart depicting the operation of the computer-based instructional program. (JDS)

New Audiences: Handicapped Learners

ED173983 EC114963

Computer Assisted Applications for Learning with Special Needs Children.

Sandals, Lauran H.

Apr 1979 26p.; Paper presented at the Meeting of the American Educational Research Association ; Not available in hard copy due to marginal legibility

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: RESEARCH REPORT (143); CONFERENCE PAPER (150)

The paper presents a brief study of the use of computers for instructional purposes with 875 handicapped children; and appendixes list a mathematics skills hierarchy, a language arts hierarchy, excerpts from student reports, and abstracts of studies of computer assisted learning with physically handicapped, learning disabled, and deaf children. Results of the study presented suggest that there are many positive advantages to computer assisted instruction for handicapped children including subjective behavioral advantages demonstrated by the improved attitude of Ss and their peers (who are in charge of proctoring many of the systems). (PHR)

EJ183882

Microcomputer Communication for the Handicapped.

Scully, T.

People's Computers, 6, 5, 34-43, 1978

The program described was designed for microcomputer application to aid the communication process of an individual with cerebral palsy. This microcomputer communication system is characterized by thought transfer options of word groups, subgroups, individual words, and letters selected and shown on a TV screen.

ED162466 EC112509

The Effects of CATTS' Feedback in a Preservice Special Education Teacher Training Program. Final Report 53.32.

Semmel, Melvyn I.; And Others

Indiana Univ., Bloomington. Center for Innovation in Teaching the Handicapped.

Aug 1976 131p.; Several tables in Appendix I may not reproduce well due to light print

Sponsoring Agency: Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.

EDRS Price - MF01/PC06 Plus Postage.

Document Type: RESEARCH REPORT (143)

The effects of Computer-Assisted Teacher Training System (CATTS) feedback in a preservice special education teacher training program are discussed. It is explained that a series of studies were conducted to test the efficacy of CATTS feedback in effecting teacher trainees' acquisition and performance of specific teaching skills. Chapter 1 presents the goals and objectives of the project, an overview of the project (pilot procedures, descrimination training, laboratory classroom design, trainee evaluation), and describes both the organization of the CATTS project and an overview of CATTS itself (teaching station, observation coding station, analysis-encoding station). Chapter 2 deals with the two observation systems used for feedback of teacher and student behaviors to trainees, COG-STRAT (focused on teacher and student cognitive styles of interaction) and MAN-STRAT (focused on student on- and off-task behavior and strategies of teacher management of student behavior), and discusses such areas as observer training and evaluation of observer competencies. Such aspects of project organization and implementation as teacher education laboratory classrooms, implementation procedures (teaching and coding), scheduling observation and teachers, and the effects of feedback on trainee behaviors are studied in chapter 3. Chapter 4 summarizes the results of the study which revealed that all trainees significantly increased their rate of criterion performance as a function of CATTS feedback. The summary and conclusions of the project are presented in the final chapter. (BD)

ED160070 IR006213

Telecommunications for the Severely Handicapped. Final Report.

Tawney, James W.

Jan 1977 180p.; Photographs and charts may reproduce poorly

Sponsoring Agency: Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C.

EDRS Price - MF01/PC08 Plus Postage.

Document Type: RESEARCH REPORT (143)

The project described was designed to develop prototype electronically controlled learning environments in home settings, in order to provide instruction for persons with assumed severe developmental retardation and attendant multiple handicaps. The first of nine sections in this report contains the justification for the project, abstracted critical components of the request for proposals, and a list of the major objectives proposed for the project. Specific steps and major events are listed in chronological order in Section 2. Sections 3, 4, and 5 report the procedures and outcomes of system development, child referral and family demographic information, and instructional home intervention. Contributed services from the University of Kentucky Center for the Handicapped are described in Section 6, child performance profiles are listed in Section 7, costs estimates for a prototype system are provided in Section 8, and a summary and recommendations are presented in Section 9. Appendices include a discussion of the rationale for the development of telecommunications technologies and descriptions of five prototype systems; a chart summarizing the major activities associated with technological development and their attendant problems; and a telecommunications operations manual. (Author/CMV)

ED157299 EC111784

Programming Educational Environments for the Severely Retarded: Curriculum Development, Research and Service, Emanating from an Errorless Learning Model.

Tawney, James W.

Jun 1978 19p.; Paper presented at the World Congress on Future Special Education (First, Stirling, Scotland, June 25 - July 1, 1978)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

The paper describes a 6-year project to develop curriculum, instructional technology, and computer generated instruction for severely developmentally retarded children (1 to 21 years old). Sections focus on curriculum content (which includes 100 instructional programs in such areas as self help skills), curriculum structure, the integrated learning system, instructional model, and field validation. A view of the educational environments for severely impaired children in the year 2000 is presented, encompassing the concepts of efficient and futuristic uses of computer technology in homes and in schools. (Author/SBH)

ED160046 IR005997

A National Survey of the Use of Computer Assisted Instruction in Schools for the Deaf. Final Report.

vonFeldt, James R.

National Technical Inst. for the Deaf, Rochester, N. Y.

Jan 1978 12p.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

This survey was the first systematic attempt to identify use of computer assisted instruction (CAI) in schools for the deaf. Eleven of the 50 states surveyed (46% questionnaire return rate) identified CAI systems in 34 schools for the deaf with a total of 408 terminals; elementary and secondary schools for the deaf were the predominant users. Of special note is the indication that schools for the deaf are not time sharing between administrative and educational uses--dedicated instructional systems are the rule, and 28 of the 34 computer systems are used strictly for CAI. (Author/CMV)

ED157333 EC111818

The Instructional Use of CAI in the Education of the Mentally Retarded.

Winters, John J., Jr.; And Others

Jun 1978 13p.; Paper presented at the World Congress on Future Special Education (First, Stirling, Scotland, June 25 - July 1, 1978)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Computer assisted instruction (CAI) studies with the mentally retarded in the United States and Canada reveal that the retarded benefit from CAI in academic and social skills. Their learning is enhanced to the same extent as that of the nonretarded.

CAI can be cost-effective, especially with the reduced costs of mini and microcomputers; however, available computer programs are not developed specifically for this population. An integration of available low cost computers and dedicated high quality computer programs is required if the mentally retarded are to benefit from CAI courseware. (Author/SBH)

New Audiences: Incarcerated Learners

ED149712 IR005379

Minnesota Corrections Computer-Based Instruction Project. Final Progress Report. January 1 to March 31, 1977.

Bagley, Carole A.

Minnesota State Dept. of Corrections, St. Paul.

1977 33p.; Appendix not available in hard copy due to poor quality of the original ; Best copy available

Sponsoring Agency: Law Enforcement Assistance Administration (Dept. of Justice), Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: RESEARCH REPORT (143)

This final report on the first year of the Minnesota Corrections Computer Project contains information on administration, organization, information development, user services, delivery, evaluation, planning, and finances of the project. Implemented at two juvenile correctional institutions, this program was intended to provide supplementary instruction in basic mathematics, reading skills, and vocational awareness. The computer was used to provide drill and practice, gaming, and tutorial instruction. Student attitudes toward the project are reported. Appended is the implementation plan, including a time schedule. (Author/STS)

ED175423 IR007587

An Evaluation of the Effectiveness of a Computer Assisted Instructional Program in Basic Literacy Skills in a County Jail.

Diem, Richard A.; Fairweather, Peter G.

12 Apr 1979 13p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 12, 1979)

Sponsoring Agency: Bureau of Prisons (Dept. of Justice), Washington, D.C.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150); EVALUATIVE REPORT (142)

This evaluation of the effectiveness of a computer assisted instructional program in basic literacy skills for inmates in a county jail covers the first year of the program. Instructional materials used were developed by Control Data Corporation for use on the PLATO system, and consisted of lessons in vocabulary, reading, spelling, arithmetic computation, and arithmetic problem solving. The reactions of both the prison population and the administrative staff of the Bexar County Detention Center (San Antonio) and their involvement in the program are discussed. Achievement gains of prisoners participating in CAI are compared with those of prisoners in a traditional instruction group, and some suggestions are offered for more effective use of CAI both for inmates and staff development courses. (RAO)

Content Area Applications: Agriculture

ED179798 CE023567

Computer Assisted Instruction in Agricultural Education.

Hudson, C. Jordan

1979 7p.; Speech presented at the Annual Convention of the American Vocational Association (73rd, Anaheim, California, December 1, 1979)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: TEACHING GUIDE (052); CONFERENCE PAPER (150)

Computer Assisted Instruction (CAI) is discussed briefly as it might apply to agricultural education in order to supplement both text and teacher. CAI format is shown in a typical tutorial program used to help students understand basic concepts of work, power, horsepower, and torque. The author points out other instructional uses of CAI, such as collection and treatment of data; sharing of programs with other teachers; teaching logic; testing to the maximum level of student ability; generation of exams, simulations, and games; and graphics. CAI's most important feature, the author contends, is the interaction—the provision of immediate, relevant feedback to the student. (CP)

Content Area Applications: Basic Skills

ED160074 IR006233

Basic Skills Mathematics Curriculum Development for CBE.

Heimer, Ralph T.; Rizza, Peter J., Jr.

Mar 1978 7p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

This paper describes the Basic Skills Learning System, a comprehensive curriculum development effort designed to deliver a variety of materials via the PLATO System in the three content areas of reading, language, and mathematics. Design criteria required that the system be individualized, adaptive, and responsive as well as modularized and structured hierarchically, and use performance objectives, the mastery learning paradigm, diagnostic and prescriptive strategies, and a multi-sensory learning format. Discussion focuses primarily on the Basic Mathematics curriculum as an example of the type of instructional material and strategy used throughout the Learning System. (VT)

ED167114 IR006854

Highline Public Schools Computer-Assisted Instruction Project: A Program to Meet Disadvantaged Students' Individual Needs for Basic Skill Development: Final Report.

Maser, Arthur L.; And Others

Highline Public Schools, Seattle, Wash.

30 Jun 1977 114p.; Parts marginally legible due to print quality
EDRS Price - MF01/PC05 Plus Postage.
Document Type: EVALUATIVE REPORT (142); RESEARCH REPORT (143)

This description of a computer-assisted instruction project, which provides an alternative approach to individual instruction in basic skills for economically and educationally disadvantaged students at the secondary level, includes the results of evaluations conducted at the end of each of three school years. Instruction in priority areas--arithmetic, language arts, and reading--was administered to students severely deficient in one or more skill areas in a different manner within each school. Management and student outcome objectives were evaluated by written documentation and data on student pre- and posttests. Data indicate that student use was excellent during the 1974-1975 school year, outcome objectives were met, and response by students, parents, and faculty was generally positive. Management and student outcome objectives in the second year of implementation met or exceeded expectations, student and teacher involvement increased remarkably, and student, parent, and faculty attitudes were especially positive. Objective data for the third year of operation produced the most outstanding results, indicating that the program was highly successful and that computer-assisted instruction is a viable method of building basic skills with eligible students. (CWM)

ED128056 JC760494

Multimedia Instruction in Basic English.
Rudisill, Vivian A.; Jabs, Max L.
San Antonio Coll., Tex.
1976 12p.
EDRS Price - MF01/PC01 Plus Postage.
Document Type: PROJECT DESCRIPTION (141)

Individual, self-paced, and computer assisted instruction (CAI) characterize the English Multimedia Laboratory of San Antonio College, where entering freshmen with composite American College Test scores in the lowest category of 1-15 have increased from 28% in 1967 to 61% in 1975. The multimedia lab, operational since 1973, replaced the relatively ineffectual Basic English remedial course. Personalized instruction is the primary characteristic of the laboratory, each student moving at his own pace through ten learning areas according to specified behavioral objectives. CAI plays an integral part, providing nearly instantaneous feedback and additional tutoring, as necessary, to student users. CAI has also been adapted for use with hearing-impaired students. Results of the multimedia laboratory, in addition to increased levels of competency, include: individualized learning of basic skills at the student's own level of performance, individual review and testing, increased motivation, immediate reinforcement, improved attendance and student involvement, a sequence of instruction, and self-tutoring. A comparative study of students' subsequent freshman composition grades has shown that grades of D and F decreased from 54.02% in pre-lab years to 38.64% since implementation of the lab. (JDS)

ED171326 IR007380

CAI As An Adjunct to Teach Basic Skills.
Simutis, Zita M.
1979 12p.; This study was supported in part by the Defense Activity for Non-Traditional Educational Support, Pensacola, FLA
EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

A study was conducted to determine the instructional effectiveness of supplementary computer assisted instruction (CAI) for high school equivalency training in the military. Thirty-two students in language arts classes and 32 students in mathematics classes were randomly divided into two groups: one receiving traditional instruction and the other traditional instruction supplemented by CAI. Students were Army enlisted personnel, none of whom were high school graduates. A CAI curriculum specifically tailored to the needs of the study was developed from existing lessons in language arts and mathematics available on the University of Illinois PLATO system. Students in the traditional group received instruction concurrently in the same topics as the traditional with CAI group. On all measures, scores for students in the traditional with CAI group were higher than for students in the traditional only group. The research indicated that CAI can successfully be implemented at an Army education center for use with students in the lower abilities range. (CMV)

Content Area Applications: Economics

ED150057 SO010636

An Evaluation of the Cognitive and Affective Performance of an Integrated Set of CAI Materials in the Principles of Macroeconomics. Studies in Economic Education, No. 4.

Daellenbach, Lawrence A.; And Others

Wisconsin Univ., La Crosse. Center for Economic Education.

Feb 1977 86p.; Pages 74, 75 of Appendix B may not reproduce clearly due to small type size in original document

EDRS Price - MF01/PC04 Plus Postage.

Document Type: RESEARCH REPORT (143)

The purpose of this study was to determine the effect of computer assisted instruction (CAI) on the cognitive and affective development of college students enrolled in a principles of macroeconomics course. The hypotheses of the experiment were stated as follows: In relation to the traditional principles course, the experimental treatment will result in (1) no loss in general cognitive capabilities of the students; (2) superior analytical capability; (3) and more favorable student attitudes toward economics. The experimental design for the course emphasized the substitution of CAI for the traditional lecture-textbook approach. It involved two instructors each teaching a control and an experimental section. The experimental sections differed from the control sections in that the students were exposed to CAI materials which included tutorial lessons and simulations. The results indicated that exposure to integrated CAI materials had a significant positive effect on basic analytical ability. However, the materials were not able to produce significant results across all question types on a general cognitive instrument. Furthermore, the affective results clearly indicated no effect. In accounting for these results, it is pointed out that the CAI materials were not uniform, that they were optional, and that the data base was relatively small. (Author/JK)

Content Area Applications: English

ED183196 IR008138

Computer Applications in the Teaching of English. The Illinois Series on Educational Application of Computers, No. 19e.

Jaycox, Kathleen M.

Illinois Univ., Urbana. Dept. of Secondary Education.

1979 57p.; For related documents, see IR 008 123-139.

Sponsoring Agency: EXXON Education Foundation, New York, N.Y.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: NON-CLASSROOM MATERIAL (055)

This paper is written to familiarize present and future English teachers with the current status of computer assisted instruction (CAI) in the teaching of English. Addressed both to practicing teachers who have little understanding of computers, and English education majors with computer science minors, it deals with programs written in BASIC. The first section is concerned with current attitudes about computers among English teachers, the need for computer literacy, and humanistic concerns regarding computers. The following section focuses on methodology in the teaching of English apart from any form of CAI. The final five sections deal with various aspects of instructional applications of computers which could augment the methods already described. Following each section is a list of suggested projects and activities which vary according to the learner's experience in teaching and/or programming. (Author/CMV)

Content Area Applications: Guidance and Counseling

ED156200 IR006433

ICS: An Intelligent Vocational Guidance Counseling System.

Lorton, Paul, Jr.; And Others

Jun 1977 9p.; Paper presented at the Conference on Computers in the Undergraduate Curricula (East Lansing, Michigan, June 20-22, 1977); For entire proceedings, see IR 006 142

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Computerized career guidance systems hold the promise of providing a breadth and depth of information for which counselors are not suited. At the Institute for Mathematical Studies in the Social Sciences, Stanford University, an individualized counseling system (ICS) is being developed which integrates advanced techniques from comptuer assisted instruction and computer science into an interactive computer system for vocational guidance counseling. The ICS system seeks to individualize and modularize the guidance process by providing (1) better computer models of individual students, (2) flexible data structures to permit ready and nearly automatic updating of data bases for guidance, and (3) increased transferability of programs. It is estimated that, even in the trial phase, ICS will be as cost effective as systems already in production use. (CMV)

ED156216 IR006449

DISCOVER: A Computerized Careers Curriculum.

Rayman, Jack R.

Jun 1977 10p.; Paper presented at the Conference on Computers in Undergraduate Curricula (East Lansing, Michigan, June 20-22, 1977); For entire proceedings, see IR 006 142

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Liberal arts campuses are feeling a need to provide better career education services for their undergraduate students. The DISCOVER Foundation has developed a comprehensive computerized career guidance system for grades 7 through 12 which not only provides career information, but also performs such tasks as teaching students decision-making skills and helping them to clarify their values. This system, which is being adapted for a college level computerized careers course, provides guidance through 12 50-minute modules of interactive content. Some tools and techniques developed by other guidance professionals, e.g., Holland's Self-Directed Search, have been incorporated in the System with permission, and provisions have been made to accommodate individual differences. Each of the DISCOVER system modules is described. (CMV)

ED178070 IR007813

Simulating American Social Structure: An Interactive Game-Simulation for Career and Life Cycle Decisions.

Shreiner, Scott C.

Apr 1979 23p.; Paper presented at the Annual Conference on Instructional Computing Applications of the Indiana University Computing Network (6th, Indiana University, South Bend, IN, April 24-25, 1979)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: PROJECT DESCRIPTION (141); CONFERENCE PAPER (150)

CALIS is an interactive computer-based simulation developed to assess career decisions and to present decisional alternatives to the players in career and life path choices, assessing the relative consequences associated with these choices. The CALIS game-simulation places the player in the social-psychological situation of an individual confronting American society during the late adolescent through early middle age stages of the life cycle. This social-psychological situation is simulate-operationalized as a micro-economic decision making process where a player allocates his or her time and money to various aspects of the game. The mode of play permits the player to allocate these resources in any "life area," allowing the players to determine the importance of each area and the order of play. Beyond the resource allocation consideration, CALIS also collects player self-evaluations of the utility of their major decisions and the probability of success of attaining their game-oriented goals. The computer uses a graphic ratio-to-standard measure to make these utility and probability determinations. (Author)

Content Area Applications: Health Sciences

ED121279 IR003256

The Use of Computer Based Instruction in an Extended Degree Program for Nurses Leading to the Bachelor of Science Degree.

Estes, Carmen A.

Pennsylvania State Univ., University Park. Computer-Assisted Instruction Lab.

Apr 1976 16p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 19-23, 1976)

Sponsoring Agency: National Institutes of Health (DHEW), Bethesda, Md. Div. of Nursing.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Some of the problems encountered in nursing arise out of the multiplicity of preservice educational programs and the predominance of registered nurses (R.N.s) who are prepared below the baccalaureate degree level. To facilitate the efforts of nurses already in practice to earn a bachelor's degree, the Extended Degree Program in Nursing (ENURS) of the Pennsylvania State University was developed. Through a mobile system, computer-based courses are now available to ENURS students in Pennsylvania. Called Computer Managed Review and Examination (CMRE), it has evolved from a set of traditional paper-and-pencil "challenge exams" to a comprehensive, computer-managed, self-study and assessment program for each of seven basic Penn State nursing courses for which a registered nurse may accrue credit by examination. (Author/JY)

ED179134 HE011919

Educational Applications of a Theory of Clinical Expertise.

Greenfield, Stephen; And Others

1979 48p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, 1979); some appendices will not reproduce well

EDRS Price - MF01/PC02 Plus Postage.

Document Type: PROJECT DESCRIPTION (141); CONFERENCE PAPER (150)

Two computer-based instructional projects and a workbook model designed to emphasize three different applications of expertise in medical problem-solving are described. The "CVTEST" Project (cardiovascular) explored the use of a computer program to provide guidance to students and facilitate self-assessment. The program does not directly teach, but provides support to students in the form of goals, content analyses, questions, and feedback discussions. The "Diagnostic Workbook" Project presents examples of expert problem-solving as illustrations of the process involved in the formation of a cognitive image of a case. Accompanying each case are the protocol generated during the simulation exercises by either an expert or novice subject, a critical annotation of the protocol, generated by the expert consultant, and exercises (along with correct answers). The decision support model was designed to provide decision support by giving information tailored to clinical tasks. Among principles listed for the formation of the system are that it would supplement meta-knowledge and that it extend domain knowledge. A sample of the "CVTEST" Project questions and workbook exercises and feedback are appended. (PHR)

ED161419 IR006259

Report of the Computer Assisted Instruction Project in the Faculty of Nursing at the University of Calgary.

Hannah, Kathryn

Mar 1978 8p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

Since August of 1976, the Faculty of Nursing at the University of Calgary has developed and implemented a four-phase computer assisted instruction (CAI) project. In Phase I, the pilot project to demonstrate effectiveness of CAI as an alternative teaching strategy in that setting has been completed and replication is on-going. In Phase II, identification of areas in the curriculum which could be effectively taught using CAI is currently being surveyed; and an inventory of nursing-related CAI programs in North America is to begin in January 1978. In Phase III, acquisition of computer terminals for the Faculty of Nursing's Learning Resource Center has been accomplished; acquisition of CAI lessons from external sources is awaiting the completion of Phase II; and the development of CAI lessons is in progress. Preliminary discussions have taken place about the delivery of CAI-based courses for credit to nurses in rural Alberta; this will be Phase IV of the project. (VT)

ED162622 IR006266

Medical Student Authoring of Medical Lessons on PLATO.

Nelson, Charles D.

Mar 1978 11p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

Computers are intrinsically fascinating to students once they learn what materials are available and become familiar with working on the terminals. The Plato Health Science Network contains an extensive catalog of lessons of interest to medical students and is available to anyone on request; this has resulted in several hundred hours per week of lesson usage. A by-product of this high usage is that students become interested in creating lessons by authoring scripts and programming the computer. Historically this student interest has been discouraged as irrelevant to the process of becoming a physician. However, because of student persistence, such participation has come to be accepted and even encouraged by the staff of the Medical Plato Project. Student participation in authoring has resulted in a substantial number of quality additions to the clinical offerings of PLATO. Specific examples of student work are described, including projects in progress or planned. In addition, contributions of student authors toward faculty involvement in CAI are noted. (Author/VT)

ED148301 IR005250

A Computer-Based Dietary Counseling System.

Slack, Warner V.; And Others

Journal of the American Dietetic Association, v69 n4 p385-390 Oct 1976

Oct 1976 8p.; Not available in hard copy due to marginal legibility of original

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: JOURNAL ARTICLE (080)

The preliminary trial of a program in which principles of patient-computer dialogue have been applied to dietary counseling is described. The program was designed to obtain historical information from overweight patients and to provide instruction and guidance regarding dietary behavior. Beginning with a teaching sequence, 25 non-overweight participants responded to 375 questions (items) on the cathode-ray screen. Questions were divided into three sections: dietary history, analysis of food intake for a usual day, and diet and menu planner. As questions appeared on the screen, the participants read them aloud, explained their understanding to an assistant, and answered at the keyboard. This initial trial sought to study the process of dietary interviews by computer, the read-aloud procedure served to uncover defects in word choice, instructions, and interview strategies. Difficulties in understanding were evident in 12% of the items. Use of the keyboard evoked more difficulties than favorable reactions (7% vs. 4%) during the teaching sequence, whereas favorable responses to the keyboard were more frequent than difficulties (2% vs. 1%) during the dietary sections. While the computer interviews demand clarity and structure from the writer of the program, they do facilitate the writing and revision by compiling a complete and detailed record of the interview. Despite the difficulties of a limited choice of responses, ambiguities and hidden meanings in the questions, and matters of courtesy, cumulative refinements of the interview will lead, eventually, to a standardized counseling system of known performance. (DAG)

ED144573 IR005173

Computer Assisted Instruction in Air Force Medical Training: Preliminary Findings.

Steinkerchner, Raymond E.; Deignan, Gerard M.

Air Force Human Resources Lab., Lowry AFB, Colo. Technical Training Div.

May 1977 90p.

Sponsoring Agency: Air Force Human Resources Lab., Brooks AFB, Texas.

EDRS Price - MF01/PC04 Plus Postage.

Document Type: RESEARCH REPORT (143)

An experimental problem-oriented medical curriculum was developed and administered by means of PLATO IV computer terminals to students enrolled in a Physician Assistant course. This report provided information required to determine if subsequent in-depth study of the comparative effectiveness of computer-assisted instruction as opposed to alternative conventional modes of instruction was warranted. This information includes development procedures, implementation conditions, student reactions, lessons learned, and cost data analyzed by Air Force health care scientists. (Author/DAG)

ED160080 IR006239

DDS: The Dental Diagnostic Simulation System.

Tira, Daniel E.

Mar 1978 7p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

The Dental Diagnostic Simulation (DDS) System provides an alternative to simulation systems which represent diagnostic case studies of relatively limited scope. It may be used to generate simulated case studies in all of the dental specialty areas with case materials progressing through the gamut of the diagnostic process. The generation of a functional diagnostic case study by the DDS System requires relatively little effort on the part of either a case author or the CAI staff. Any case thus generated exhibits two major areas of emphasis: the gathering of information about the "patient" and his or her dental problem, and the student's submission of diagnoses pertinent to the case. (VT)

ED160078 IR006237

Computer-Assisted Instruction in Medicine: A German View.

Voss, Gunnar; And Others

Mar 1978 12p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

The following seven American programs of Computer Assisted Instruction in Medicine are among 20 implemented at the University of Bonn: OPHTHA and FUNDUS (programs of the tutorial mode), CARDI (presents information via three media on the clinical alterations of Mitral and Aortic Stenosis as well as Mitral and Aortal Incompetence), CARDIOPULMONARY RESUSCITATION (simulates patients with cardiac arrest and takes the students through the sequence of cardiopulmonary resuscitation techniques), ABDOMINAL PAIN and COMA (used over the Health Education Network), and CASE (Computer Aided Simulation of the clinical Encounter). These programs were evaluated by means of questionnaires or personal interviews. The results clearly indicate that students feel comfortable working with programs of the tutorial mode and that they regard them as being motivating and more efficient than traditional instruction. Furthermore there was a very favorable response to clinical simulation programs. (Author/VT)

Content Area Applications: Languages

ED138087 FL008455

Computer-Assisted and Programed Instruction in Foreign Languages: A Selected, Annotated Bibliography. CAL-ERIC/CLL Series on Languages and Linguistics, No. 50.

Birdsong, David

ERIC Clearinghouse on Languages and Linguistics, Arlington, Va.

Apr 1977 24p.; For related document, see FL 008 450

Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: BIBLIOGRAPHY (131)

The documents listed in this annotated bibliography on computer-aided and programmed instruction in foreign languages appeared in RIE during the period from April 1971 through February 1977. The selection comprises reports on conference and research projects, papers concerned with theory and application, and descriptions of teaching materials. The listing is selective rather than comprehensive, and each entry includes, when available, author's name, title of article, author's professional affiliation, date of completion or publication, number of pages, and ED number. (CLK)

ED139269 FL008573

The Potential and Limitation of Computer Assisted Instruction in the Teaching of Foreign Languages.

Haas, Werner

Nov 1976 31p.; Paper presented at the annual meeting of the American Council on the Teaching of Foreign Languages (New Orleans, Louisiana, November 1976) ; Print quality may be marginally legible

EDRS Price - MF01/PC02 Plus Postage.

Document Type: CONFERENCE PAPER (150)

This paper discusses the potential and limitations of computer-assisted instruction (CAI) and its relationship to individualized language instruction. Two tutorial programs are described which are designed to teach German grammar to first-year students. Both are fully integrated with the course classroom, lab, homework, and textbook. One salient feature of CAI is its compatibility with principles of individualized instruction, e.g. pacing, one-to-one tutoring, branching technique, and insistence on performance level. Its greatest potential lies in its use in remedial work. Although at present only reading and writing skills are incorporated, there is no reason why oral comprehension and speaking cannot be included in the future. For the most part student reaction to CAI is favorable. Limitations of CAI include: (a) lack of sufficient testing and evaluation guidelines at present; (b) logistics problems; and (c) uneasiness on the part of teachers who view CAI as a threat to their job. An index and samples of German pattern practices are appended. (AM)

ED136591 FL008464

Computer Assistance in Foreign Language Instruction: Problems, Possibilities, and Payoffs.

Milstein, Barney M.; O'Brien, George M.

Aug 76 11p.; Paper given at Workshop Session at the annual meeting of the American Association of Teachers of German (44th, Philadelphia, Pennsylvania, August 1976).

EDRS Price - MF01/PC01 Plus Postage.

At the 1976 annual meeting of the AATG, a workshop session on computer-aided language instruction (CALI) was held. Hands-on experience was the primary purpose of the session; but essential to such involvement were presentations of the various modes of CALI and discussion of the accomplishments to be expected and the caveats. A fully developed language course component, "Programmed-German," developed by and used at the University of Minnesota for students throughout the state was discussed, as were the computer techniques individual instructors may develop for their specific teaching needs. (Author/CFM)

Content Area Applications: Law

ED178009 HE011927

Teaching Law with Computers: A Collection of Essays.

Burris, Russell; And Others

Interuniversity Communications Council (EDUCOM), Princeton, N. J.

1979 150p.; EDUCOM Series in Computing and Telecommunications in Higher Education No. 2

Available from: EDUCOM, Interuniversity Communications Council, Inc., Post Office Box 364, Rosedale Road, Princeton, NJ 08590 ($15.00)

Document Not Available from EDRS.

Document Type: BOOK (010); COLLECTION (020); REVIEW LITERATURE (070)

The use of the computer in teaching law is examined in this collection of essays. Discussed are the development of law-related programmed workbooks, predecessors to computer aided instruction (CAI); research findings and their implications for the design of law-related CAI exercises; advantages and limitations of CAI programs in law; and attempts to measure the effectiveness of CAI as a method of law instruction. Essays include: "Why Use a Computer in Teaching and Learning Law?" (Robert Keeton); "How Can the Law Professor Best Use Computer-aided Exercises?" (Roger Park); "How Do Computer-aided Exercises in Law Work?" (Robert Keeton); "The Authoring Process and Instructional Design" (Russell Burris); "The EDUCOM Workshop: A Model" (Carolyn P. Landis); "Network Experience and Experiments" (Russell Burris); and "Computer-aided Instruction in Law: Theories, Techniques, and Trepidations" (Roger Park and Russell Burris). Included in several of the essays are statistics and tables reporting such findings as student reaction and response to CAI, law schools involved in preliminary use of CAI, and examples of CAI exercises. The benefits of CAI were reported to be that it gives each student individual attention in that there is constant communication and feedback between student and computer and it gives the professor the opportunity to view instant critique of the student's performance as reported by the computer. (LC)

Content Area Applications: Mathematics/Computer Science/Data Analysis/Statistics

ED146563 CS003774

Computer Assisted Problem Solving in an Introductory Statistics Course. Technical Report No. 56.

Anderson, Thomas H.; And Others

Bolt, Beranek and Newman, Inc., Cambridge, Mass.; Illinois Univ., Urbana. Center for the Study of Reading.

Aug 1977 26p.

Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: RESEARCH REPORT (143)

The computer assisted problem solving system (CAPS) described in this booklet administered "homework" problem sets designed to develop students' computational, estimation, and procedural skills. These skills were related to important concepts in an introductory statistics course. CAPS generated unique data, judged student performance, provided hints about problem solving strategies, and stored relevant performance data. A PDP-10 computer, with hard copy and CRT terminals, was programmed to interact with students in an instructional mode. Courseware was coded in interactive Fortran and packaged so that additional items could be added easily to the existing problem set. After three semesters of implementation, student reaction to CAPS is generally favorable. (Author)

ED125599 IR003686

Final Report on the Automated Computer Science Education System.

Danielson, R. L.; And Others

Illinois Univ., Urbana. Dept. of Computer Science.

Jun 1976 51p.; Period of project: January 1, 1974 to June 30, 1976

EDRS Price - MF01/PC03 Plus Postage.

Document Type: RESEARCH REPORT (143)

At the University of Illinois at Urbana, a computer based curriculum called Automated Computer Science Education System (ACSES) has been developed to supplement instruction in introductory computer science courses or to assist individuals interested in acquiring a foundation in computer science through independent study. The system, which uses PLATO terminals, is presently in routine use in several courses at the University of Illinois, and it has been used at Wright Community College in Chicago. Recent changes in programing and technical innovations have increased its instructional effectiveness. The first section of this report describes the goals and design of ACSES. Later sections provide yearly reviews of progress made for the duration of a grant from the National Science Foundation. (EMH)

ED163992 IR006787

Elementary Mathematics with PLATO.

Dugdale, Sharon; Kibbey, David

Illinois Univ., Urbana. Coordinated Science Lab.

Jul 1977 33p.; For related document, see IR 006 788

Sponsoring Agency: National Science Foundation, Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: CLASSROOM MATERIAL (050)

Computer-based courseware for the intermediate grades developed by the PLATO Elementary Mathematics Project was tested for a three year period in the public schools of Champaign and Urbana, Illinois. This brief report describes the project in terms of the student session, curriculum, educational effectiveness, and data feedback to teachers. Descriptions of 19 lessons on a variety of topics include objectives and purpose, as well as a few selected screen displays for most of them. A sample of student work shows how ten students responded to similar problems, and sources from which the lessons were taken are cited. (CMV)

ED152291 IR005772

Report on the Use of the Computer-Assisted Instruction Course STAT1 as Used in Educational Psychology 502. 1975-1976.

Hunka, S.; And Others

Alberta Univ., Edmonton. Div. of Educational Research Services.

Nov 1976 26p.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: RESEARCH REPORT (143)

STAT1 is a computer-assisted instruction course in basic research methodology in education. Student performance data were collected from testing, revision, and retesting. This study includes improvements to STAT1, contents of STAT1 as used in the summer of 1976, a description of examinations and laboratory assignments, characteristics of students, a comparison of marks for the 1975 and 1976 groups, structural changes among the relationships of examinations from 1975 to 1976, attitude of students towards STAT1, general observations, and current use of STAT1. (VT)

ED134229 IR004441

ACSES: The Automated Computer Science Education System at the University of Illinois.

Nievergelt, J.; And Others

Illinois Univ., Urbana. Dept. of Computer Science.

Aug 1976 171p.

Sponsoring Agency: National Science Foundation, Washington, D.C.

EDRS Price - MF01/PC07 Plus Postage.

Document Type: RESEARCH REPORT (143)

The Automated Computer Science Educational System (ACSES) has been developed at the University of Illinois for the purpose of providing improved education for the large number of students taking introductory computer science courses. The major components of this system are: a library of instructional lessons, an interactive programing system with excellent error diagnostics, an information retrieval system, an automated exam and quiz system, and several lessons which judge student programs. This report briefly describes each of these components, as well as some ideas on programing language design resulting from this experience, and presents an evaluation of the use of the system over the past three years. (Author)

ED161935 TM007964

FEHR-Practicum: A Computer-Simulation Approach to Teaching Research and Evaluation Methods.

Shiffler, Nancy L.; And Others

Mar 1978 24p.; Paper presented at the Annual Meeting of the American Educational Research Association (62nd, Toronto, Ontario, Canada, March 27-31, 1978); For related documents, see ED 131 055 and 151 364-366

EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

The Formative Evaluation and Heuristic Research (FEHR) Practicum, a computer-simulated educational research and evaluation experience, was assessed as a means of improving participants' knowledge and skill in traditional research. Trainee activities include the preparation of preliminary surveys, evaluation proposals, budgets, computer commands, and final reports. It was hypothesized that achievement in a two-semester graduate-level course in research design and data analysis would improve in direct relation to the amount of exposure to FEHR. During the first semester the effects of FEHR on final exam scores and on perceived research competence and interest in research were assessed; the Self Assessment of Research and Evaluation Skills was used to measure attitudes toward research. The second-semester evaluation examined the effects of differing amounts of exposure to FEHR on the development of applied research skills; that is, students' FEHR project reports were rated on a five-part criterion-referenced scale. Evaluation data from both semesters supported the hypothesis that increased FEHR exposure would produce a monotonic increase in achievement in basic statistics and research design and in the applied skills represented by the final report. The attitudinal measures provide less consistent support for the hypothesized monotonic trend. The FEHR-Practicum Rating Sheet (used in this study to rate proposals and final reports) is appended. (Author/CP)

ED156444 SE024352

PLATO and Fourth Grade Mathematics.

Stake, Bernadine Evans

Mar 1978 23p.; Paper presented at the annual meeting of the American Educational Research Association (Toronto, Canada, March 27-31, 1978); Not available in hard copy due to marginal legibility of original document

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: RESEARCH REPORT (143)

The purpose of the case study was to understand the effects of computer-based PLATO (Programmed Logic for Automatic Teaching Operations) mathematics curriculum on the classroom environment and the children in it. A cultural perspective was taken and anthropological techniques were used to investigate children's learning of mathematics in the context of a PLATO classroom. The data were obtained through observations and interviews over two years of one teacher and selected children, plus a teacher log and discussions with the curriculum developers. Results show that the children and the teacher benefited from the PLATO mathematics curriculum in achievement, typing, reading, and enthusiasm in mathematics. (MN)

ED141109 SE022590

Current Use of Computers in the Teaching of Statistics.

Tubb, Gary W.

Apr 1977 36p.; Paper presented at the Computer Science and Statistics annual symposium (10th, Gaithersburg, Maryland, April 14-15, 1977) ; Appendices may be marginally legible due to small print of the orignial document

EDRS Price - MF01/PC02 Plus Postage.

Document Type: CONFERENCE PAPER (150)

This paper, prepared for a symposium on the interface of computer sciences and statistics, addresses the use of computers in the teaching of statistics. Two principle means of integrating the fields of computer science education with education in statistics are identified: (1) integrating the content of statistics in courses on computers, and (2) using computers as a method of statistics instruction. The first half of the paper provides a review of six textbooks in current use; three present statistical concepts and problems as examples of programming problems, while the remaining three are designed to teach statistics using computers as an aid in problem solving. The second half of the paper is devoted to a review of research and evaluation findings related to computer assisted instruction, simulations, and both interactional and non-interactional statistical packages. A bibliography containing 62 titles is included. (SD)

Content Area Applications: Music

EJ198327

An Examination of Computer-Based Educational Hardware at Twenty-Eight NCCBMI Member Schools.

Arenson, Michael A.

Journal of Computer-Based Instruction; v5 n1-2 p38-40 Aug-Nov 1978

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); REPORTS--RESEARCH (143)

Reviews a questionnaire sent to each of the 139 members of the National Consortium for Computer-Based Music Instruction to identify the systems, terminals, and peripheral equipment available to them, and discusses their future hardware needs. (RAO)

EJ198325

Random Access in Computer-Assisted Music Instruction.

Eddins, John M.

Discusses the need for quick access to stored musical sounds for effective music learning, and describes random access audio hardware designed for use with the PLATO system. Examples are presented and five pedogogical principles derived are discussed. (Author/RAO)

EJ198326

Computerized Aural Training: An Interactive System Designed to Help Both Teachers and Students.

Lamb, M. R.; Bates, R. H. T.

Describes the training in basic auditory recognition and retention skills throug the use of a computer-electronic organ interface, explains session structure and computerized aural test modules, and details the results. (RAO)

EJ198328

Applications of Computers to Music Pedagogy, Analysis, and Research: A Selected Bibliography.

Peters, G. David; Eddins, John M.

Journal of Computer-Based Instruction; v5 n1-2 p41-44 Aug-Nov 1978

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); REFERENCE MATERIALS--BIBLIOGRAPHIES (131)

Provides a literature review of computers and music education through articles and monographs, conference proceedings, project reports, dissertations, books, and research in progress. (RAO)

EJ198323

Proposal for a Notation to be Used in Encoding Musical Texts for Computer Programming.

Prevel, Martin

Journal of Computer-Based Instruction; v5 n1-2 p1-10 Aug-Nov 1978

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); GUIDES--NON-CLASSROOM (055)

Discusses an alpha-numeric system of encoding musical notaion--ALPHAMUSE--which is based on fundamental concepts of tonal statements. Encoding problems for pitch, duration, and superpositions are described and solutions offered. (RAO)

EJ198324

A National Survey on the Uses of, and Attitudes Toward Programed Instruction and Computers in Public School and College Music Education.

Taylor, Jack A.; Parrish, James W.

Journal of Computer-Based Instruction; v5 n1-2 p11-21 Aug-Nov 1978

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); REPORTS--RESEARCH (143)

Surveys the role of programed instruction and the computer in music education across the United States. Public school attitudes and employment practices, and the attitudes and advising practices of college music departments are discussed as they relate to this technology. (RAO)

Meet the Music Teacher's New Assistant--A Microcomputer.

Borry, L.

AEDS Monitor; v18 n5-6 p21 Oct-Dec 1979

The use of the microcomputer as a tool in the field of music education is described in this articles, which focuses on the use of the computer generated notation and sound in teaching composition and music fundamentals.

EJ225861

Integration of CAI into a Music Program.

Foltz, Roger; Gross, Dorothy

Journal of Computer-Based Instruction, v6 n3 p72-76 Feb 1980

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141); NON-CLASSROOM MATERIAL (055)

Provides a format whereby the reader can become an effective director of a CAI music program in a relatively short period of time. Included are guidelines for planning, financing, and operating a CAI program within the context of a complete music curriculum. (Author)

EJ225864

The Effects of Computer-Assisted Aural Drill Time on Achievement in Musical Interval Identification.

Humphries, James A.

Journal of Computer-Based Instruction, v6 n3 p91-98 Feb 1980

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); RESEARCH REPORT (143)

Reports a study to determine the relationship between computer assisted aural drill time and achievement in musical interval identification, to determine the effect of computer assisted aural drill on attitude toward the study of aural music theory, and to determine the effect of previous keyboard experience on achievement. (RAO)

EJ225862

Development of a Concept-Centered Ear-Training CAI System.

Ottman, Robert W.; And Others

Journal of Computer-Based Instruction, v6 n3 p79-86 Feb 1980

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)

Describes the development of a CAI ear-training system centered around a concept-oriented philosophy which focuses all application areas on a learning sequence based on tertian tonality. The hardware and software support of this system, site development and maintenance, student use, and curriculum development are reported. (RAO)

EJ225865

A Model for Integrating Computer-Assisted Instruction Materials into the Music Curriculum.

Placek, Robert W.

Journal of Computer-Based Instruction, v6 n3 p99-105 Feb 1980

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); RESEARCH REPORT (143)

Discusses the importance of the design structure of total programs in computer assisted music instruction and presents a model for integrating computer assisted instruction materials into the music curriculum. Listed are objectives and their relevant behaviors for use in a CAI course of study in music education. (Author)

EJ225863

Review of Audio Interfacing Literature for Computer-Assisted Music Instruction.

Watanabe, Nan

Journal of Computer-Based Instruction, v6 n3 p87-90 Feb 1980

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); REVIEW LITERATURE (070)

Presents a review of the literature dealing with audio devices used in computer assisted music instruction and discusses the need for research and development of reliable, cost-effective, random access audio hardware. (Author)

EJ225860

Developments in Computer Based Music Instruction and Research at Indiana University.

Wittlich, Gary E.

Journal of Computer-Based Instruction, v6 n3 p62-71 Feb 1980

Reprint: UMI

Document Type: JOURNAL ARTICLE (080); PROJECT DESCRIPTION (141)

The three projects described are a pitch pattern perception study designed to lead to accurate and rapid perception of patterns of from 2 to 12 notes, exercises leading to an understanding of basic principles of voice learning in triadic tonal music, and a procedure for manipulating encoding pitch materials interactively. (Author)

ED161421 IR006261

PLATO Music Systems.

Gooch, Sherwin

Mar 1978 17p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

The original PLATO music concept was to replace the human performer in the feedback process, wherein the composer specifies an action and monitors the outcome, with a computer-controlled device. The first device of this type is known as the Gooch Synthetic Woodwind (GSW), which attempted to provide some of the features needed in an interactive, compositional facility, and many of those needed for computer-based music instruction. In the case of GSW, a PLATO-compatible music language was developed, as well as a compiler for this language, two music text editors, a filing system for music binaries, programs to play the music binaries in real time, and many debugging and compositional aids. A number of interactive compositional programs have also been written. With the advent of microprocessor technology, new PLATO terminals were developed to be less expensive and more flexible than the PLATO IV terminals. The 8080 microcomputer system in PLATO V terminals is capable of executing programs locally; it can also be connected directly to terminal peripheral devices. The goal of this system is to provide tools for music educators to use in the development of instructional materials, which might possibly include music dictation drills, automatically graded keyboard performances, envelope and timbre ear-training, interactive examples or labs in musical acoustics, and composition and theory exercises with immediate feedback. (VT)

ED171312 IR007337

The Development and Trial of a Computer Managed Test of Music Fundamentals.

Herrold, Rebecca

16 Nov 1977 21p.; Paper presented at the Oregon Council for Research in Teacher Education (Oregon, November 16, 1977); Appendix B, Table 2 may not reproduce well due to poor quality of the original type

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150); PROJECT DESCRIPTION (141); EVALUATIVE REPORT (142)

This paper presents the advantages of computer generated tests over traditional tests, outlines the procedures followed in developing a test of music fundamentals, and concludes with the results of a trial of the test. The test, which was developed and programmed in BASIC at Oregon State University, covers elements of notation, intervals and triads, song identification, meter identification, scales, solmization, major western composers, and their principal works. Subjects for the trial of the test were 95 students from freshman theory and basic musicianship courses and juniors in music education. (CMV)

ED161411 IR006248

Computer-Based Recognition of Perceptual Patterns in Harmonic Dictation Exercises.

Hofstetter, Fred T.

Mar 1978 11p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: CONFERENCE PAPER (150)

During the 1975-76 academic year student response data were saved for a group of 17 freshman music majors as they worked through 15 units of harmonic dictation exercises delivered on the University of Delaware's Graded Units for Interactive Dictation Operation (GUIDO) system. Analysis of the student data base led to the identification of seven confusion tendencies that affect the perception of harmonies: bass line confusions, confusions by inversion, confusions by chord function, confusions by chord quality, unperceived sevenths, unperceived roots, and favorite response confusions. The level of student achievement on individual harmonies was found to be highly correlated with the percentage of times these harmonies are asked in the curriculum. (Author)

ED160088 IR006247

Computer-Assisted Instruction Applications to Standardized Music Achievement Testing.

Peters, G. David

Mar 1978 10p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see IR 006 231

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: CONFERENCE PAPER (150)

Recent developments in software and hardware capabilities have made possible the combination of the Music Achievement Test (MAT) series and the PLATO music programs as a new delivery system. Initial reactions to the PLATO administration of digital to analog (D to A) testing in music have been positive; the immediate feedback available by computer, plus the individual pacing of the student are good reasons for this early success. The mode of test presentation remains a major question for extensive further study. If computer administered testing is standardized in the future, the chore of item analysis and test validation can be an easy matter, and it will be possible to have a continuous updating of norms. (VT)

Content Area Applications: Reading

ED155676 CS004199

Using CAI to Teach Vocabulary Concepts.

Block, Karen K.; McCaslin, Ellen S.

May 1978 40p.; Paper presented at the Annual Meeting of the International Reading Association (23rd, Houston, Texas, May 1-5, 1978)

EDRS Price - MF01/PC02 Plus Postage.
Document Type: CONFERENCE PAPER (150)

A project dealing with the development of computer-assisted instructional materials to teach new vocabulary words to college students is discussed in this paper. Seven different instructional modules for teaching new words are being developed at the University of Pittsburgh; they are entitled: define, word relations, classify, words in context, create, word line, and equivalents. The first three modules are discussed at some length in the paper and computer exercise routines are given. The remaining four modules are sketched briefly along with a summary of computer techniques. The research design, still in process at the time of writing, is described. The experimenters expect that there will be both specific and indirect methods effects in their program of vocabulary instruction. Several computer exercise routines are included. (JF)

ED155634 CS004152

Computer Assisted Instruction in Beginning Reading: The Stanford Projects.

Fletcher, J. D.

Pittsburgh Univ., Pa. Learning Research and Development Center.

May 1976 65p.; Paper presented at the Conference on Theory and Practice of Beginning Reading Instruction, Univ. of Pittsburgh, Learning Research and Development Center, May 1976; For related documents, see CS 004 132-133, CS 004 135, CS 004 137-173, ED 125 315 and ED 145 399; Not available in hard copy due to marginal legibility of original document

Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

Two beginning reading curricula that use computer assisted instruction were developed during 12 years of work at Stanford University. This paper describes those curricula and the motivations, assumptions, procedures, and problems that were involved in their construction. Twelve observations about curricular design and development are summarized to help others interested in the developing field of cost-effective, individualized instruction. (Discussion following presentation of the paper is included.) (RL)

ED138929 CS003382

Initial Reading through Computer Animation.

Geoffrion, Leo D.; Bergeron, R. Daniel

Apr 1977 15p.; Paper presented at the Annual Meeting of the American Educational Research Association (New York, New York, April 1977)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

The Computer Animated Reading Instruction System (CARIS) was developed to introduce reading to children with varied sensory, cognitive, and physical handicaps. CARIS employs an exploratory learning approach which encourages children to experiment with the reading and writing of words and sentences. Brief computer-animated cartoons provide the child with visual feedback of the meaning of sentences constructed by the child. Pilot experiments show that children with varied learning handicaps can develop beginning reading skills through use of this system. The possible implications of such systems to current models of reading readiness and psychometric testing are briefly mentioned. (Author)

ED162277 CS004481

On-Line Diagnosis of Reading Difficulties-IV. Technical Report No. 464.

Johnson, Dale D.; And Others

Wisconsin Univ., Madison. Research and Development Center for Individualized Schooling.

Sep 1978 60p.

Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.

EDRS Price - MF01/PC03 Plus Postage.
Document Type: RESEARCH REPORT (143)

To evaluate the performance of elementary school children on various paradigms for assessing vocabulary knowledge on-line, three studies were conducted. In the first, 173 second through eighth grade students were involved in an investigation of five approaches to vocabulary assessment: synonym in context, synonym out of context, cloze, oral recognition, and self-screening. Results revealed significant problems with the self-screening and oral recognition formats; they were therefore eliminated from the succeeding studies. A total of 184 first through fifth graders participated in the second and third studies, which further evaluated the three remaining formats. These studies also correlated the children's performance on the three paradigms with scores on a standardized measure of reading comprehension. The results suggest that no single format is superior in assessing vocabulary knowledge across all grade levels. Data from the third study also indicate lower correlations between vocabulary knowledge and comprehension ability for the second and third grades than for the fourth and fifth grades. (Author/FL)

ED173771 CS004920
Computer Applications in Reading.
Mason, George E.; Blanchard, Jay S.
International Reading Association, Newark, Del.
1979 115p.
EDRS Price - MF01/PC05 Plus Postage.
Document Type: BOOK (010); REVIEW LITERATURE (070)

Consituting the first full treatment of computers in reading, this volume focuses on recent developments in computer assisted instruction and its classroom implications. The eight chapters provide information on the following topics: the development of digital computers and of programs for using them for educational purposes, college centers developing computer based reading programs, public school applications of computers to reading instruction, computer assessment of readability and textbook analysis, sources of computer services, recommended uses of computers in the reading program, computers in reading research, and the future of the computer as an aid to reading instruction. Extensive annotated references are provided for each chapter. (FL)

ED138967 CS003483
Summary of Studies for an On-Line Reading Diagnosis System-III. Technical Report No. 409.
Venezky, Richard L.; And Others
Wisconsin Univ., Madison. Research and Development Center for Cognitive Learning.
Mar 1977 76p.
Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.
EDRS Price - MF01/PC04 Plus Postage.
Document Type: RESEARCH REPORT (143)

Three studies were performed to test the feasibility of the PLATO Computer Assisted Instruction system for on-line testing of reading skills. In Study 1, three different approaches to vocabulary assessment were tested: self-screening, synonym, and word matching under brief exposure. One hundred ten subjects from a Chicago, Illinois, public elementary school received from one to three levels of each test format via PLATO terminals. Branching to levels within each format was under program control. The results revealed problems both with test formats and with test items. Based on these results, improvements were made to the testing programs and a second group of 95 subjects was run. The results from these tests showed an expected range of scores for the Synonym and Self-Screening Tests but cast further doubt on the validity of the Timed Exposure Test. A third study, directed toward the validity of this test, led to the rejection of the timed exposure paradigm. (Author)

ED142990 CS003635

The Reading Machine.

Yeager, Robert F.

May 1977 32p.; Paper presented at the Annual Meeting of the International Reading Association (22nd, Miami Beach, Florida, May 2-6, 1977)

EDRS Price - MF01/PC02 Plus Postage.

Document Type: CONFERENCE PAPER (150)

This paper describes lessons in beginning reading, developed by the PLATO Elementary Reading Curriculum Project (PERC), for use with first graders. The lessons were developed to reflect a number of specific principles, including: (1) all responses should be meaningful; (2) remedial feedback should be kept to a minimum; (3) students must always be forced to make the correct response; and (4) students should be able to pace their own instruction. Specific lessons from the PERC series are used to illustrate these principles and to demonstrate the unique uses of a computer for teaching reading. These uses turn the computer into a "reading machine," letting the first graders feel that they are in control of their computer terminal, rather than controlled by it. (AA)

Content Area Applications: Science

ED139644 SE022457

Computer Assisted Instruction and Computer Test Construction in Chemistry at Middle Georgia College.

DeLorenzo, Ronald A.

1976 8p.; Paper presented at the 1977 Two-Year College Chemistry Conference, New Orleans, Louisiana.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Details of a computer-assisted instruction program in chemistry are given. Approximately half of the instructional computer usage is centered around drill, tutorial, and simulation programs. Problem solving, including research, and programming courses constitute the other half. Also described is a computerized system available to the chemistry faculty that generates examinations from an item pool, grades the examinations, and prepares a statistical analysis of the examination questions, answers, and scores. (MH)

ED138451 SE022338

Community College Biology Lesson Catalogue.

Herrick, Kathie G.

Illinois Univ., Urbana. Computer-Based Education Lab.

Aug 1976 99p.; For related document, see ED 128 172; Not available in hard copy due to marginal legibility of Lesson Samples

Sponsoring Agency: National Science Foundation, Washington, D.C.

Available from: PLATO Publications, Computer-Based Education Research Lab, 252 Engineering Research Lab, University of Illinois, Urbana, IL 61801 (no price quoted)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CLASSROOM MATERIAL (050)

This catalog contains descriptions of the available biology lessons on PLATO IV, compiled to assist instructors in planning their curricula. Information is provided for 87 lessons in the following areas: experimental tools and techniques; chemical basis of life; cellular structure and function; bioenergetics - enzymes and cellular metabolism; reproduction and development; classical genetics and the nature of the gene and its action; evolution; population biology and ecology; plant anatomy, physiology, and pathology; taxonomy; human anatomy and physiology; animal behavior; and biology games. For each lesson, the following are provided: file name, authors, instructional objectives, description, student time, instructional strategy, special notes, and displays. All lessons are appropriate for use in the first semesters of college-level biology; most were written for non-major survey courses. The Appendix contains the Community College Biology Index and Multiple-Choice Quiz Construction. (CS)

ED176806 IR007828

Computers in Chemistry Teaching: A Bibliography and Index of CAL Packages.

Rushby, N. J.

London Univ. (England). Imperial Coll. Computer Centre.

Jul 1979 33p.; For a related document, see IR 007 784

EDRS Price - MF01/PC02 Plus Postage.

Document Type: BIBLIOGRAPHY (131); DIRECTORY (132)

This resource document lists 36 books, papers, and reports dealing with various uses of computers in chemistry instruction; and describes several computer program packages available for use in teaching undergraduate, experimental laboratory, physical, and nuclear and X-ray chemistry, including biochemistry. Each program package is presented by reference number, name, description, subject, comment, language, and contact source for obtaining the package. (CMV)

ED125617 IR003704

Computer Usage in the College-Credit High School Biology Curriculum.

Slaby, Robert

4 May 1976 12p.; Paper presented at the Association for Educational Data Systems Annual Conference (Phoenix, Arizona, May 4, 1976)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Students of advanced life science courses at Beverly Hills High School, California, are able to approximate a wide variety of life process experiments through use of computer simulations. Students are taught to use the BASIC language and to execute programs on the Hewlett-Packard 2000 Access series. Computer programs are used to enhance instruction by providing: (1) unit reviews; (2) self-tests; (3) analyses of laboratory data; and (4) simulations of life processes. One program, SPHOTO, enables students to observe and quantitatively analyze the process of photosynthesis. A sample SPHOTO dialog is provided. (EMH)

Content Area Applications: Social Studies

ED164424 SO011435

Using the Computer in the Social Studies Classroom.

Hantula, James

Nov 1978 13p.; Paper presented at Annual Meeting of the National Council for the Social Studies (Houston, Texas, November 22-25, 1978)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Social studies instruction will improve if social studies educators cooperate with computer professionals to develop ways of using the computer in the classroom. Objections of many social studies teachers to computers are based on experiences in which computers were used to intimidate consumers, implement poorly conceived projects, and promote rigid instructional approaches. If social studies teachers and computer professionals work together to provide a balanced program in processing information, they can extend skills of data collection, storage, retrieval, and analysis. Examples of computer projects of special interest to social studies teachers include the PLATO system, which is especially useful for studying population geography, and computer based resource units. Specific advantages of using computer instruction in the classroom include individualization of instruction, broadening of teachers' bases of information by allowing them to search various computer bases such as Educational Resources Information Center (ERIC), diagnosis of student needs, assignment of instructional sequences, evaluation of programs, locating information, data processing, and enhancing educational games and simulations. (DB)

ED129652 SO009404

Computer-Assisted Instruction in Political Science. Instructional Resource Monograph No. 4.

Pool, Jonathan, Ed.

American Political Science Association, Washington, D.C.

1976 138p.

Sponsoring Agency: National Science Foundation, Washington, D.C.

Available from: Publications, American Political Science Association, 1527 New Hampshire Avenue NW, Washington, D.C. 20036 ($4.00 paperback)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: BOOK (010)

This six-author study highlights the most significant attributes of Computer Assisted Instruction (CAI) and explains the techniques of authoring CAI lessons in political science. Fourth in a series of Instructional Resource Monographs, the volume has the objective to inform political science teachers and students about what CAI has to offer on a range of topics, including political philosophy and political behavior. The volume is divided into two sections. Section I concerns theory and deals with the capabilities and problems of CAI in general. It is divided into three chapters: "The Computer as an Aid to Effective Teaching;" "CAI: What's in It for Me?;" and "Authoring Made Easier: How CAI Packages Work." Section II deals with CAI practice and presents three experimental examples of CAI in political science. It includes these chapters: "Playing Politics: Reflections on an Experiment in Computer-Based Education;" "Computer-Assisted Instruction in Political Philosophy;" and "Teaching Principles and Methods with CAI." A guide to selected continuing sources of information on CAI is included. (Author/DB)

ED143588 SO010263

Computer in the (History) Classroom.

Schafer, Robert G.

AHA Newsletter, v15 n7 Oct 1977

Dec 1976 15p.; Paper presented at Annual Meeting of the American Historical Association (Washington, D.C., December 28-30, 1976)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

The paper discusses how computer assisted instruction can increase student interest and participation in history courses on the college level. An instructor might make use of a computer as an ancillary data bank system, a device for examining student understanding of course material, and a means of creating simulation and other educational games. Several computer exercises are described and student reactions to these games are discussed. Student interest in and learning from computer games is generally high, although some negative feedback from students preferring a more traditional course is noted. General guidelines to teachers composing computer exercises are presented. The author advises that the games be short, simple, specific, interesting, non-ambiguous, that they emphasize important points in the exercise, and that they involve the player continuously through frequent demand for decisions. The conclusion is that use of computers in the classroom is one way of maintaining the vitality of the study of history and reversing the trend of declining enrollment in history courses due to student disinterest. (Author/DB)

ED137162 SO009873

Simulated Research Experiences for Teaching Research Methodology: Some Educational Computing Implications.

Wieting, Stephen G.

1976 29p.; Paper presented at Annual Meeting of the American Sociological Association (New York, New York, August 30-September 3, 1976)

EDRS Price - MF01/PC02 Plus Postage.

Document Type: CONFERENCE PAPER (150)

The ambiguities surrounding computer simulations in sociology teaching and research on the university level are described and the implications of computers as a teaching technique are explored. Intended as an explanation to sociology teachers and researchers of how students' learning experiences are shaped by their orientations to computer environments, departmental organization, and university organization, the paper is presented in three sections. Section I discusses the relationship between using the computer for educational purposes and sociological theory. Simulation examples and observations on educational environments are given. Section II presents reasons why computer usage is a particularly suitable topic for educational research. Reasons include the compatability of computer technology with both teaching and research and evidence that students improve decision-making skills when trained in computer simulations. There are also indications that participation in computer simulations contributes to development of basic sociological knowledge which, in turn, facilitates learning of sociological theory. Section III discusses computer usage by the reformist element in sociology within the framework of statements by sociologist Wilbert Moore. Tables, a questionnaire of student attitudes toward research methodology, and references dealing with sociology education, simulations, student evaluations, and computerized education are included. (Author/DB)

Developmental Efforts: PLATO

ED168577 IR007119

Third Summative Report of the Delaware PLATO Project.
Hofstetter, Fred T.
Delaware Univ., Newark.
1 Jul 1978 105p.; For related documents, see ED 154 802 and ED 156 112 ; Parts may be marginally legible due to small print
EDRS Price - MF01/PC05 Plus Postage.
Document Type: PROJECT DESCRIPTION (141)

Descriptions of new developments in the areas of facilities, applications, user services, support staff, research, evaluation, and courseware production since the Second Summative Report (1977) are provided, as well as a summative overview of PLATO applications at the University of Delaware. Through the purchase of its own PLATO system, this university has become the first institution to offer comprehensive PLATO services on the east coast. New applications in accounting, anthropology, chemical engineering, honors, mathematics, military science, and security have brought the number of departments using PLATO to a total of 28. The project has also laid the groundwork for the publication of its PLATO materials on the national CDC PLATO network, and lessons have been produced for publication in the areas of agriculture, art, counseling, education, human resources, languages, music, nursing, psychology, and system utilities. Divided into three main sections, the report covers project history and development, departmental applications, and evaluation. A catalog of courseware under development at Delaware is appended. (Author/JEG)

ED151017 IR005741

PLATO Curricular Materials. Number 6.
Lyman, Elisabeth R.
Illinois Univ., Urbana. Computer-Based Education Lab.
Nov 1977 80p.; For related documents, see ED 124 141, 142 and ED 135 379
Sponsoring Agency: Advanced Research Projects Agency (DOD), Washington, D.C.
EDRS Price - MF01/PC04 Plus Postage.
Document Type: CLASSROOM MATERIAL (050)

This is the sixth report in the series published by the PLATO Services Organization to keep users and prospective users up to date on curricular developments on the PLATO system. The series provides information on completed lessons which have been used in actual instructional situations. At present there are 6,000 hours of instructional materials in 89 subject areas on the PLATO system. This report contains a list of (1) all the subject areas and instructional levels; (2) the descriptive titles of completed lessons arranged by subject area; (3) the names, addresses, telephone numbers, and University of Illinois (UI) PLATO system signons of persons to contact for more detailed information on the listed materials; and (4) a list of a variety of recreational programs (games) which exist on the UI PLATO system. (Author/DAG)

ED161435 IR006400

PLATO Highlights, Fifth Revision.
Lyman, Elisabeth R.
Illinois Univ., Urbana. Computer-Based Education Lab.
Mar 1978 58p.
Available from: Computer-Based Education Research Laboratory, University of Illinois, Urbana, Illinois ($2.60)

EDRS Price - MF01/PC03 Plus Postage.
Document Type: PROJECT DESCRIPTION (141)

This description of the PLATO system over its first seven years describes the development of PLATO III and PLATO IV, lists financial supporters of the PLATO project from 1960 to 1977, outlines highlights in its history, and provides a chronological list of publications about the system. Figures include the locations and increasing numbers of PLATO terminals at the University of Illinois and student usage by year. (CMV)

ED146235 TM006747

Evaluation of the PLATO IV Computer-based Education System in the Community College. Final Report.

Murphy, Richard T.; Appel, Lola Rhea
Educational Testing Service, Princeton, N.J.
Jun 1977 446p.; Parts of the appendix are marginally legible due to print quality; For related document, see ED 122 900
Sponsoring Agency: National Science Foundation, Washington, D.C.
EDRS Price - MF01/PC18 Plus Postage.
Document Type: RESEARCH REPORT (143)

PLATO IV (Programmed Logic for Automatic Teaching Operations) is the fourth generation of a computer assisted instructional system developed at the University of Illinois. The use of PLATO IV at five community colleges, and an evaluation of its educational impact on participating students, instructors, and colleges are described. The PLATO system was found to be operating essentially as planned by its developers. The system provided a medium for instruction with substantial appeal to both students and instructors, but it had no consistent positive nor negative effects on student achievement nor attrition. The cooperative effort between instructors and developers was successful in that a substantial number of PLATO lessons were designed, developed, and integrated into ongoing community college courses in the five targeted subject areas: accounting, biology, chemistry, English, and mathematics. The usage of PLATO by students and instructors exceeded initial expectations although the extent of usage in classes was somewhat less on the average than had been projected originally. According to the evaluators, the critical factor which accounted for the high acceptance and usage of PLATO was the control that instructors had over its use. The attitude surveys and tabulated results are appended. (Author/GDC)

ED158767 IR006398

Demonstration of the PLATO IV Computer-Based Education System. Final Report. January 1, 1972-June 30, 1976.

Slattow, G., Ed.
Illinois Univ., Urbana. Computer-Based Education Lab.
Mar 1977 412p.
Sponsoring Agency: National Science Foundation, Washington, D.C.
Available from: Computer-Based Education Research Laboratory, University Illinois, Urbana, Illinois ($7.70)
EDRS Price - MF01/PC17 Plus Postage.
Document Type: RESEARCH REPORT (143)

This report for the period January 1, 1972 to June 30, 1976 describes a program conducted to reach the following major objectives: (1) to develop, test, and operate a large geographically dispersed PLATO IV network; (2) to implement an educational program involving educational liaison, teacher/author training, curriculum planning, and materials development; (3) to carry out a two-year field test and demonstration; and (4) to develop plans and strategies and assist in a systematic evaluation of the educational effectiveness of the PLATO IV system. Chapter 1 gives a brief account of PLATO history, a summary of the program, and a discussion of the results and their implications. Chapter 2 describes the methods by which the PLATO Service Organization provides author training, liaison, documentation, and other services to a large user community. Chapter 3 provides evaluation of system reliability, performance, use, and educational effectiveness, and presents a detailed case study in elementary mathematics. The next two chapters describe experience in the use of PLATO in mathematics and reading in elementary schools. Chapter 6 describes the community colleges program project, which has introduced PLATO curricula in accountancy, biology, chemistry, English and mathematics. Chapters 7 and 8 describe the experience with PLATO in the teaching of physics and chemistry at the university level. The final chapter discusses the continuous development of systems software for PLATO. (Author/VT)

Developmental Efforts: TICCIT

ED167606 TM008406

Evaluation of the TICCIT Computer-Assisted Instructional System in the Community College. Final Report. Volume I.

Alderman, Donald L.

Educational Testing Service, Princeton, N.J.

Sep 1978 544p.; For related document, see TM 008 407

Sponsoring Agency: National Science Foundation, Washington, D.C.

EDRS Price - MF02/PC22 Plus Postage.

Document Type: EVALUATIVE REPORT (142); RESEARCH REPORT (143)

An evaluation of TICCIT (Time-shared Interactive, Computer-controlled, Information Television) involved over 5,000 community college students in introductory algebra and English composition courses. Comparisons between computer-assisted instruction and lecture-discussion sections of the same courses focused on four aspects of student performance: course completion rates, achievement, attitudes, and activities (time allocation). Other evaluation questions focused on teacher attitudes, teacher role, and program implementation; including administration, site management, and courseware design goals. It was decided to construct objective and essay tests specifically for this program, to measure both end-of-course achievement and immediate learning. TICCIT had a significant positive impact on achievement. The dramatic decreases noted in course completion rates may be inherent in self-paced instruction because students who have trouble managing their own instruction are risks. Student attitudes towards TICCIT were often less favorable than toward conventional teaching methods, but attitudes improved when TICCIT couses were supplemented by small group discussion with an instructor. Results suggest that TICCIT may be inappropriate for community colleges since only those students with a strong initial grasp in the subject matter benefited substantially. In itself, computer assisted instruction is no panacea; results depend on factors involved in the instructional process. (CP)

ED167607 TM008407

Evaluation of the TICCIT Computer-Assisted Instructional System in the Community College. Final Report. Volume II. Appendices.

Alderman, Donald L.

Educational Testing Service, Princeton, N.J.

Sep 1978 372p.; Best copy available; For related document, see TM 008 406

Sponsoring Agency: National Science Foundation, Washington, D.C.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: EVALUATIVE REPORT (142); STATISTICAL MATERIAL (110)

These appendices contain outlines for the TICCIT (Time-shared Interactive, Computer-controlled, Information Television) mathematics and writing courses; a corresponding item classification for both achievement tests; and essay topics for the English achievement test. Blanks of all data collection forms are included--they concern course evaluation, student observation in the classroom, student registration, and faculty attitude and activities. Results of the data collection are reported, specifically, reasons for section selection; student demographic profile; course completion rates; enrollment in subsequent terms; test results; and summaries of the student and faculty surveys. Comparisons were made between TICCIT and traditional lecture sections wherever possible. (CP)

ED121328 IR003324

Tailor-Made Teaching through TICCIT.

Rappaport, Wanda; Olenbush, Elizabeth

Mitre Corp., McLean, Va.

Mitre Matrix, v8 n4 1975

1975 16p.; Photographs will reproduce poorly

EDRS Price - MF01/PC01 Plus Postage.

Document Type: JOURNAL ARTICLE (080)

Time-shared, Interactive, Computer-Controlled Information Television (TICCIT) is a computer-based system of instruction designed to provide low-cost, high-quality education that is completely individualized. Using inexpensive minicomputers, color television sets, and typewriter-like keyboards, TICCIT can serve as many as 128 students simultaneously. The system is designed to substitute for classroom instruction. It permits efficient use of instructional space, frees instructors from routine teaching tasks, and provides more flexible scheduling for individual students. TICCIT courses in English composition and mathematics have been installed in community colleges in Virginia and Arizona, and TICCIT courses form part of the curriculum of Brigham Young University. TICCIT systems are being used for training at several military installations. The newest application of TICCIT is in the area of special education. TICCIT programs serve severely handicapped, homebound children in Amherst, New York, and deaf students at the Model Secondary School for the Deaf in Washington, D.C. (Author/PF)

Developmental Efforts: Teacher Training

ED183183 IR008125

Designing Instruction for Teaching with a Computer. The Illinois Series on Educational Application of Computers, No. 3e.

Alessi, Stephen M.; Dennis, J. Richard
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 28p.; For related documents, see IR 008 123-139.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

A review of the major components of lesson planning and two conventional planning methods provides background for this explanation of the type of planning required when designing instruction for teaching with the computer. This "formal planning" includes the identification and articulation of the locical sequencing of both instructional events and instructional decisions, and planning sequences are nonlinear, taking a flowchart form, rather than being tightly tied to the days of the week. Discussion of the factors involved in formal planning includes decisions as instructional events, sequencing based on decisions, the organization of formal planning, and consturcting the flowchart; examples of first and second drafts of a flowchart for a series of lessons teaching the computer language BASIC are provided. This document was designed as a resource for preservice and inservice teacher training, and a study activity is provided, as well as a list of seven references. (CMV)

ED183193 IR008135

A Teacher's Introduction to Administrative Uses of Computers. The Illinois Series on Educational Application of Computers, No. 15e.

Baum, Madeline; Dennis, J. Richard, Ed.
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 23p.; Best copy available; For related documents, see IR 008 123-140, IR 008 142, and IR 008 144.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

This paper presents an overview of administrative applications of computers and how they function to help teachers develop the ability to discriminate between well- and poorly-designed methods of using computers to solve administrative problems or accomplish administrative tasks. The administrative applications presented include school financial activities, student information, personnel information, and other management information. Eight problem situations are described as the basis for study activities in administrative uses of computers. Appendix A contains an outline of administrative computer applications in schools, and a list of 25 references in Appendix B. This is one of a series of papers prepared as resources for preservice and inservice training of teachers. (CMV)

ED176798 IR007782

Acquisition and Applications of Three Microcomputers by the Department of Secondary Education. The Illinois Series on Educational Application of Computers. Number 29.

Case, Jeff; And Others

Illinois Univ., Urbana. Dept. of Secondary Education.

Jan 1979 15p.; For related documents, see ED 138 286-288, ED 138 290, and ED 142 199

EDRS Price - MF01/PC01 Plus Postage.

Document Type: PROJECT DESCRIPTION (141)

This report describes the experience of the Department of Secondary Education in acquiring and applying three microcomputers: MSEA, (Micro-Computer System for Educational Applications), North Star HORIZON, and VECTOR. MSEA was designed as a central facility that would be capable of providing all types of educational computing research and service, and would include all important computer peripherals. The North Star HORIZON microcomputer was chosen for its portability and power, to be used in workshops and other outreach in the schools and community colleges. The VECTOR microcomputer together with special software was designed and installed for the Office of the Graduate Dean in the College. Each of these microcomputers can be used for instructional or administrative applications and for research, teaching, or service to students and staff. The implementation of these systems has contributed not only to development of staff and computer uses in the College of Education, but to several research and development projects in the department. (JEG)

ED140774 IR004721

Computer Classification of Triangles and Quadrilaterals—A Challenging Application. Illinois Series on Educational Applications of Computers. Number 19.

Dennis, J. Richard

Dec 1976 15p.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

Exercises for high school students are presented which entail designing computer programs to enable the computer to identify a geometrical figure as a specific type of triangle or quadrilateral, given its 2-dimensional coordinates. Computer programming skills required are not sophisticated, but a solution requires careful analysis of necessary and sufficient conditions for each figure type. If a computer is not available, flow chart solutions are possible. Flow chart samples of possible solutions to a variety of both triangle and quadrilateral identification problems are presented. (Author/STS)

ED183190 IR008132

Computer Managed Instruction and Individualization. The Illinois Series on Educational Application of Computers, No. 11e.

Dennis, J. Richard

Illinois Univ., Urbana. Dept. of Secondary Education.

1979 31p.; Best copy available; For related documents, see IR 008 123-139.

Sponsoring Agency: EXXON Education Foundation, New York, N.Y.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: NON-CLASSROOM MATERIAL (055)

This paper describes functions of a computer system for management of individualized instruction, details of a computer managed instruction (CMI) facility, the role of the teacher in utilizing a CMI system, and five programs which implement the concept of individualization with computer assistance. CMI system functions described include diagnosing, assigning or prescribing, facilitating study, evaluating, data collection and manipulation, reporting, resource and space management, providing an information network, and materials implementation. The computerized facilities which comprise a system are also described, including materials creation, individualized study/evaluation, records and reporting, resource management, and communication. A brief discussion of the teacher's role in CMI and a review of CMI systems--PLAN, TIPS, CISS, AIS, and TICCIT--are included. This resource for preservice and inservice teacher training includes study activities and a 31-item bibliography. (CMV)

ED183188 IR008130

Computer Simulation and Its Instructional Uses. The Illinois Series on Educational Application of Computers, No. 8e.

Dennis, J. Richard
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 34p.; For related documents, see IR 008 123-139.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

This paper discusses computer simulation as a tool for teaching about phenomena characterized by a problem to be solved, a task or goal to be reached, a procedure to be learned, or an environment to be understood. Simulation is defined and characterized by an examination of both the attributes that are common to simulations, and a taxonomy (classification) of simulations based upon attributes not common to all instances of simulation. The many aspects of using simulations in the classroom are also discussed. This document was prepared as resource for the preservice and inservice training of teachers, and it points out that although simulations can be a valuable teaching tool, in order to use them effectively teachers need to be aware of their nature, what they can potentially provide in the way of learning experiences, and the provisions that must be made to optimize their use. A list of sources of existing simulations and a 27-item bibliography are attached. (Author/CMV)

ED183185 IR008127

Evaluating Materials for Teaching With a Computer. The Illinois Series on Educational Application of Computers, No. 5e.

Dennis, J. Richard
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 26p.; Best copy available; For related documents, see IR 008 123-139.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055); TEST, QUESTIONNAIRE (160)

The details and process of evaluating computerized instructional materials are presented for the major classes of such materials, i.e., courseware--the set of computer programs with which the student interacts directly to learn--and instructional software--the instructional facilities, services, or general operations which include management and testing. Formative and summative evaluation, both used to evaluate conventional materials, are considered appropriate, but two different points of focus are indicated for use with computerized materials: the interaction focus and the subject matter focus. The interaction focus concentrates both on the mechanical aspects of interaction, e.g., the function of keyboards, and such logical and communication aspects of interaction as the dialogue with the student and the degree of individualization. The questions to be asked and the data to be gathered are provided for evaluating materials in each class, but it is pointed out that first hand experiences are mandatory to get a true measure of the characteristics and usefulness of any instructional computing program. This resource for preservice and inservice teacher training includes a study activity, two references, and a courseware evaluation worksheet. (CMV)

ED183197 IR008139

Practicum Activities for Training Teachers to Use Computers. The Illinois Series on Educational Application of Computers, No. 21e.

Dennis, J. Richard

Illinois Univ., Urbana. Dept. of Secondary Education.

1979 16p.; For related documents, see IR 008 123-139.

Sponsoring Agency: EXXON Education Foundation, New York, N.Y.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: NON-CLASSROOM MATERIAL (055)

This paper lists 25 objectives which computer-using teachers have designated as important for job success, and presents 11 relevant tasks to serve as a basis for practice and assessment of the objectives. These tasks deal with instructional planning, question episodes, lesson evaluation, tutorial computer assisted instruction, drill and practice, individualization and computer managed instruction, simulation, instructional games, computerized testing, hardware operation, and hardware purchasing. A background reference is cited for each task. (CMV)

ED183184 IR008126

The Question Episode—Building Block of Teaching with a Computer. The Illinois Series on Educational Application of Computers, No. 4e.

Dennis, J. Richard

Illinois Univ., Urbana. Dept. of Secondary Education.

1979 16p.; For related documents, see IR 008 123-139.

Sponsoring Agency: EXXON Education Foundation, New York, N.Y.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: NON-CLASSROOM MATERIAL (055)

This paper presents the notion of a "question episode," the smallest complete unit of computer- student interaction in computer assisted instruction, and describes such important elements as question types, student input, interpretation of student inputs, computer replies, and duration limits. Included are some guidelines to help determine the quality of question episodes found in computerized lessons. This resource for preservice and inservice teacher training suggests two study activities and lists one reference. (Author/CMV)

ED183181 IR008123

Teacher Education in Use of Computers. The Illinois Series on Educational Application of Computers, No. 1e.

Dennis, J. Richard

Illinois Univ., Urbana. Dept. of Secondary Education.

1979 23p.; For related documents, see IR 008 123-139.

Sponsoring Agency: EXXON Education Foundation, New York, N.Y.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: NON-CLASSROOM MATERIAL (055); PROJECT DESCRIPTION (141)

Two model programs have been developed for preservice and inservice training of teachers in the instructional applications of computers. The preservice model features a background in computer science, foundations of instructional computing using a total school view and content specific view, a task-centered practicum in instructional computing, and practice teaching. The inservice training model consists of three stages: (1) initial literacy, (2) implementation, and (3) maintenance or growth. Curriculum maps are provided for both programs and three references are listed. (CMV)

ED183182 IR008124

A Teacher's Introduction to Educational Computing. The Illinois Series on Educational Application of Computers, No. 2e.

Dennis, J. Richard
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 18p.; For related documents, see IR 008 123-139.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

This paper is designed to provide the educator with an overview of instructional applications of the computer, along with important issues related to each application. Applications discussed include computer managed instruction, drill and practice, simulation, computer assisted testing, instructional games, tutorials, problem solving, and classroom management. Some ways that teachers have started bringing computers into their schools are listed, as well as two references. This is one of a series of monographs prepared as resources for the preservice and inservice training of teachers. (CMV)

ED183186 IR008128

Tutorial Instruction on a Computer. The Illinois Series on Educational Application of Computers, No. 6e.

Dennis, J. Richard
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 11p.; For related documents, see IR 008 123-139.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

This paper describes a tutorial lesson to give teachers a model against which to compare and contrast a variety of instances of such lessons, and to help them to eventually come to a personal position on what constitutes a tutorial computer lesson. Three flow charts are provided as examples of tutorial style episodes. This resource for preservice and inservice teacher training includes a suggested study activity. (Author/CMV)

ED183189 IR008131

Instructional Games and the Computer-Using Teacher. The Illinois Series on Educational Application of Computers, No. 9e.

Dennis, J. Richard; And Others
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 22p.; For related documents, see IR 008 123-139.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

This discussion of games--particularly computerized games--and their potential in schools addresses several topics: what games are, types of games (free-form, rigid-form, or open-form) and their educational applications, the role of games in learning, student participation in adapting existing games for computer presentation, and special classroom management problems the teacher must plan for. This is one of a series of documents prepared as resources for the preservice and inservice training of teachers, and a 24-item bibliography is attached. (CMV)

ED138279 IR004708

A Study of Computer Simulations for Environmental Science Education. Illinois Series on Educational Applications of Computers. Number 2.

Dirks, Douglas; And Others
Feb 1975 45p.
EDRS Price - MF01/PC02 Plus Postage.
Document Type: RESEARCH REPORT (143)

This report describes Huntington simulations--computer programs and associated off-line materials for the teacher and for the students. Separate guidelines for choosing a simulation are presented for the curriculum planner and for the teacher. The Huntington simulation, POLUT, is the example which is used. Modifications to this program and its materials are described, and a role-playing game is outlined that will initiate consideration by the students of the value orientations that affect decisions about environmental issues. (DAG)

ED183195 IR008137

Computer Applications in Science Education. The Illinois Series on Educational Application of Computers, No. 17e.

Gaede, Owen F.; Singletary, Ted J.
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 85p.; For related documents, see IR 008 123-139.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

This paper provides a summary of information and ideas relevant to the use of computers in science education, describes a variety of uses and strategies, discusses advantages and disadvantages of specific applications, and explores the decision-making process surrounding computer instruction implementation. Uses and strategies which are described include laboratory assistance, simulations, tutorial lessons, drill and practice, and testing. Each of these areas ends with a list of suggested study activities. No attempt is made to teach programming, for this paper presupposes that the reader possesses some skill in either BASIC or FORTRAN, or a language of a similar structure. Appendices contain a listing of a test statistics program and a test item analysis program, and a brief bibliography is attached. (Author/CMV)

ED183200 IR008144

Documentation—A Computerized Instructional Resource Management System. The Illinois Series on Educational Application of Computers, No. 26e.

Lockard, Henry; Cox, John
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 90p.; Best copy available; The computer printout (p.46-68) may not reproduce; For related documents, see IR 008 123-140, and IR 008 142.

Sponsoring Agency: EXXON Education Foundation, New York, N.Y.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS. Language: English

Document Type: NON-CLASSROOM MATERIAL (055); AUDIOVISUAL MATERIAL (100)

This paper, which describes a computerized appointment scheduling system for individualized instruction from the point of view of the teachers and students who will use it, also includes more technical data for those readers who are familiar with the BASIC language. A guide to the logic, possible modifications, and a program listing are included, as well as a discussion of some of the less common BASIC statements used in the system to assist in various commands. The opening user's guide is intended to help those not necessarily familiar with BASIC to learn how to use the system, while the more technical programmer's guide which follows includes file structure, new semester/new teacher user program changes, other modifications and conversion (transportability) guidelines, code description, variables used, and program listing. (Author/CMV)

ED138292 IR004722

Procurement Policy in CAI Systems. Illinois Series in Educational Application of Computers. No. 21.

Muiznieks, Viktors J.

Feb 1977 21p.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

The use of computers for both administrative and/or instructional activities in secondary schools is increasing. In acquiring, maintaining, and expanding computer resources, decisions must be made regarding both products and services. This report identifies the issues and concerns related to procurement policy decisions, and guidelines are given for addressing each of the identified concerns. (DAG)

ED183198 IR008140

Documentation of CTRS—Computerized Test-Result Reporting System. The Illinois Series on Educational Application of Computers, No. 22e.

Muiznieks, Viktors J.; Cox, John

Illinois Univ., Urbana. Dept. of Secondary Education.

1979 72p.; Computer printout lists may not reproduce; see IR 008 123-139, IR 008 142, and IR 008 144.

Sponsoring Agency: EXXON Education Foundation, New York, N.Y.

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: NON-CLASSROOM MATERIAL (055); AUDIOVISUAL MATERIAL (100)

The Computerized Test-Result Reporting System (CTRS), which consists of three programs written in the BASIC language, was developed to analyze obective tests, test items, test results, and to provide the teacher-user with interpreted data about the performance of tests, test items, and students. This paper documents the three programs from the viewpoints of both the potential user in a school system who is not necessarily familiar with computers, and the computer programmer wishing to examine the structure of the system or seeking to modify the programs for use on a computer system using a different version of BASIC language. In this paper, the programs are described as they were written in Version 1.0 of the ICOM-DEBBI brand of BASIC. The three programs are PREP, a preparation program used to convert unformulated student answers into a more readily graded form; GRADE, a test grading and analysis program used to produce student results, item analysis, and test reliability results, and to output this information in printed form; and DUMP1, which is used to obtain cumulative statistics about CTRS use for more detailed analysis. Appendices include sample output from GRADE and DUMP1, as well as program listings, variables, and flow diagrams for the three programs, and the TEXT file. (Author/CMV)

ED183191 IR008133

A Look at Computer-Assisted Testing Operations. The Illinois Series on Educational Application of Computers, No. 12e.

Muiznieks, Viktors; Dennis, J. Richard
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 48p.; Best copy available; For related documents, see IR 008 123-139.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

In computer assisted test construction (CATC) systems, the computer is used to perform the mechanical aspects of testing while the teacher retains control over question content. Advantages of CATC systems include question banks, decreased importance of test item security, computer analysis and response to student test answers, item analysis assistance, capability of being integrated into individualized instructional programs, performance of clerical tasks, system availability, and question generation following a prespecified pattern. Major features of CATC systems include item banking, generation, attribute banking, and selection, as well as test scoring, printing, and interactive computer testing in linear and branched formats with sequential and multi-staged approaches. Major limitations of CATC systems include possible lack of lower case letters, character type limitations, lack of pictorial information presentation capability, no backspacing capability, difficulty in printing subscripts or superscripts, and inability to control the quality of item bank materials. Five existing CATC projects are described, and relative costs of CATC are discussed. This resource for preservice and inservice teacher training includes an 85-item bibliography. (CMV)

ED183187 IR008129

Drill and Practice on a Computer. The Illinois Series on Educational Application of Computers, No. 7e.

Stewart, James T.
Illinois Univ., Urbana. Dept. of Secondary Education.
1979 24p.; Best copy available; For related documents, see IR 008 123-139.
Sponsoring Agency: EXXON Education Foundation, New York, N.Y.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: NON-CLASSROOM MATERIAL (055)

When designing a computerized drill and practice lesson, the teacher should (1) select the content and processes of the lesson to match the content and processes of the initial instruction, (2) present a variety of stimulus presentations for an item, (3) select constructed or non-constructed response modes by the type and complexity of the material being practiced, (4) provide appropriate feedback for a student's response, (5) systematically select the next appropriate item to be presented, (6) have some appropriate lesson termination strategy, and (7) update records and report the student's score in some meaningful manner. A sample program of a general drill and practice lesson is presented and described. This resource for preservice and inservice teacher training provides study questions and a 14-item bibliography. (Author/CMV)

Basic Research: Problems

ED157542 IR006170

Problems in Conducting Research on Computer-Based Simulation.

Crawford, Alice M.

Apr 1978 19p.; Paper presented at the Annual Meeting of the American Educational Research Association (Toronto, March 1978)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Computer-based simulation (CBS) represents a unique utilization of computers for instruction that combines some of the best features of the technologies of simulation and computer assisted instruction (CAI). CBS grew out of an interest in testing the application of CAI to procedural and perceptual motor skills. With the sophisticated graphics capabilities curently available in many CBS systems, it is possible to program dynamic, two-dimensional representations of physical objects to be displayed on the screen of a computer terminal. Research suggests that advantages of CBS for training include increased trainee proficiency, time savings, cost effectiveness, and student acceptance. The overall recommendation for research in this area is to approach CBS training with a futuristic orientation to ensure maximal utilization of newly emerging technologies. (Author/CMV)

ED156155 IR006137

Problems in Researching Course Adequacy.

Romaniuk, E. W.

Mar 1978 32p.; Paper presented at the Annual Meeting of the American Educational Research Association (Toronto, Canada, March 1978)

EDRS Price - MF01/PC02 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Without rigorous evaluation during the development cycle of computer assisted instruction programs, diagnosis and revision of the courseware is likely to be haphazard and inefficient, and the probability of the course being a success is greatly reduced. This article provides guidance for developers of computer assisted instructional software in performing formative evaluations of their programs. Techniques discussed include: (1) peer review of lesson scripts, (2) automatic computer support programs, (3) single student tests, (4) small group tests, (5) class tests, and (6) field tests. Diagnosis and revision of courseware is discussed with emphasis placed on systematic analysis of student performance on both the micro and macro levels. (Author/STS)

ED156173 IR006161

Problems in Researching Computer Managed Instruction.

Van Matre, Nicholas H.

Mar 1978 10p.; Paper presented to the American Educational Research Association (Toronto, Canada, March 1978)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

The development phases of an operational computer managed instruction (CMI) system include planning, when the instructional model is designed; acquisition, when instructional system specifications are prepared; implementation/operation, which provides for the resolution of operational problems; evaluation, when the system is tested; and refinement, which provides for the improvement of system functioning and capabilities based on evaluation results. Five problems which may impact on the conduct of R&D during any of these phases are noted: (1) few off-the-shelf solutions exist; (2) hardware and software commitments limit R&D solutions; (3) solutions may not be practical; (4) research and operational personnel may not agree on R&D; and (5) research may be incompatible with operational training. A brief description of a joint venture between the Technical Training Command and the Navy Personnel Research and Development Center provides some insight into the problems encountered and the general R&D approach the Navy is using to overcome them. (BBM)

ED156156 IR006138

Problems in Researching Learner Control.

Walker, Richard A.

1978 12p.; Paper presented at the Annual Meeting of the American Educational Research Association (Toronto, Canada, March 1978)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Some of the problems that occur for researchers using the TICCIT computer assisted instructional system are described. The underlying learning strategy of the TICCIT system states that the student rather than the developer is best able to select the order of instructional frames. In order to successfully engage in research with the TICCIT system, students must be placed in a setting where learner control is expected of them and in which they can manifest learner control behavior. Successful TICCIT research also requires that the system be flexible enough to be adapted to a variety of research designs, and that the researcher plan in advance for efficient data reduction. (Author/STS)

Basic Research: Miscellaneous

ED154400 CS204128

Studies in Spelling: Theory and Practice.

Block, Karen K.

Sep 1976 22p.; Paper presented at the Annual Meeting of the American Psychological Association (Washington, D. C., September 1976)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

One cognitive theory of spelling states that the spelling of words can be produced in one of three ways, depending on the amount and kind of information stored in the memory about a particular word. Assuming this theory as a foundation, this study reviewed two forms of computer assisted instruction developed in an effort to build an instructional theory for teaching spelling. One instructional mode stressed memory structure while the other permitted practice in the generation of spelling patterns. A key component in both was the assumption of a phoneme generator, or lists of spelling patterns that are associated with the phonemes they spell. Analysis of the data regarding the children's performance in both programs supports the basic cognitive theory and supplies significant information on the various stages of the learning process: encoding, rehearsal, and entry into long-term memory. (MAI)

ED178304 SE028871

Response Mode Effects on Computer Based Problem Solving. Report Series 1979.

Brown, Bobby R.; Sustik, Joan M.

Iowa Univ., Iowa City. Computer Center.

1979 15p.; For related document, see ED 154 831; Tables contain small print which may not reproduce well

Available from: Director, CAI Laboratory, Weeg Computing Center, The University of Iowa, Iowa City, IA 52242 (no price quoted)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

This response mode study attempts to determine whether different response modes are helpful or not in facilitating the thought process in a given problem solving situation. The Luchins Water Jar Test (WJT) used in this study illustrates the phenomena "Einstelling" (mechanization of response) because it does not require any specialized content information. The author discusses the results which indicate that there is no reason to prefer constructed response mode over multiple choice or numerical list modes when considering set formation and breaking out of set. (Author/SA)

ED159036 SE024854

Diagnostic Models for Procedural Bugs in Basic Mathematics Skills.

Brown, John Seely; Burton, Richard R.

Bolt, Beranek and Newman, Inc., Cambridge, Mass.

Dec 1977 66p.

Sponsoring Agency: Advanced Research Projects Agency (DOD), Washington, D.C.; Navy Personnel Research and Development Center, San Diego, Calif.

EDRS Price - MF01/PC03 Plus Postage.

Document Type: RESEARCH REPORT (143)

A new diagnostic modeling system for automatically synthesizing a deep structure model of a student's misconceptions or bugs in his/her basic mathematics skills provides a mechanism for explaining why a student is making a mistake as opposed to simply identifying the mistake. This report consists of four sections. The first provides examples of the problems that must be handled by a diagnostic model. It then introduces procedural networks as a general framework for representing the knowledge underlying a skill. The second section discusses some of the pedagogical issues that have emerged from the use of diagnostic models within an instructional system. This discussion is framed in the context of a computer-based tutoring/gaming system developed to teach students and student teachers how to diagnose bugs strategically as well as how to provide a better understanding of the underlying structure of arithmetic skills. The third section describes our uses of an executable network as a tool for automatically diagnosing student behavior, for automatically generating "diagnostic" tests, and for judging the diagnostic quality of a given exam. Included in this section is a discussion of the success of this system in diagnosing 1300 school students from a data base of 20,000 test items. The last section discusses some future research directions. (Author/MN)

ED142991 CS003636

The Relationship between Reasoning Ability and Gain in Reading Ability. Final Report.

Carver, Ronald P.

Missouri Univ., Kansas City. School of Education.

Aug 1977 106p.; Some pages may not reproduce well due to small type

Sponsoring Agency: Office of Naval Research, Arlington, Va. Personnel and Training Research Programs Office.

EDRS Price - MF01/PC05 Plus Postage.

Document Type: RESEARCH REPORT (143)

The effect of reading practice upon reading ability was investigated in three separate studies, with six high school students in each study. Each student was given 50 to 70 hours of individualized instruction on a PLATO IV computer terminal. Half of the students in each study were selected on the basis of high scores on the Raven Progressive Matrices Test; the other half had low scores. Results indicated that the high Raven groups did not gain more than the low Raven groups. When gain in reading was measured using a test like the task employed in the reading training, a large gain was evident. When gain was measured using other techniques, there was little or no evidence that the reading practice had produced gain. The research failed to find a relationship between reasoning ability and gain in reading ability, but this could have been due to ineffective techniques used to produce gains in reading or to ineffective techniques used to measure reasoning ability. (Author/AA)

ED125545 IR003629

The Effects of Locus of Control on CAI Performance.

Fredericks, Patricia S.

Apr 1976 8p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 19-23, 1975)

EDRS Price - MF01/PC01 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Two versions of a computer-assisted instruction practice lesson on series resonant circuit analysis were compared. One was a program control version which required considerable time for students to reach criterion level. The other program was a revised student control version of the same lesson. In the program control version, quantity of practice was determined by an adaptive branching algorithm based on student performance; the student control version made practice prior to a criterion item optional. Subjects were 84 trainees in basic electricity/electronics at the Naval Training Center in San Diego. Those using the student control program showed a marked time savings over those using program control, and student control of training produced more uniform performance. Large time savings and increased test scores supported the hypothesis that a knowledgeable student can realistically estimate when he has mastered the practice material. (CH)

ED157939 TM007348

Simulated and Empirical Studies of Flexilevel Testing in Air Force Technical Training Courses. Final Report for Period 1 May 1975-30 April 1977.

Harris, Dickie A.; Penell, Roger J.

Air Force Human Resources Lab., Brooks AFB, Texas.

Sep 1977 25p.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

This study used a series of simulations to answer questions about the efficacy of adaptive testing raised by empirical studies. The first study showed that for reasonable high entry points, parameters estimated from paper-and-pencil test protocols cross-validated remarkably well to groups actually tested at a computer terminal. This suggested that feasibility studies; i.e., running actual subjects, may not be called for. The second study showed that the proportion correct during flexilevel testing was a sensitive measure of student performance. It was also concluded that the modest time savings (12 to 15 percent) was due to the parameters used to implement flexilevel testing. Study III showed that a 50 percent savings in items, and, potentially, a large savings in test time could be realized through the implementation of alternative flexilevel strategies. In summary, the overall conclusion from the three studies was that flexilevel testing, with variable entry, offers an easily implemented testing procedure with potential for significant dollar savings at minimal risk. (Author/CTM)

ED165714 IR006277

Types of Student Feedback in Physical Diagnosis Lessons.

Kemp, Lawrence B.; And Others

Mar 1978 12p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see ED 160 072

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

Different feedback formats were utilized on a series of computer assisted lessons on physical diagnosis for second year medical students. Each lesson in the series is broken down into four or five major sections; in each section, the student is presented with a list of possible actions to be taken. On each item, three forms of feedback, two of which are generated by the computer, are received. The first type of feedback is ranking the items on the list in the order in which the student would do them; this rating is then compared with that of the author and his peers. A correlation coefficient is obtained for each comparison. The second feedback component is that of the "good/bad" judgment. The student is asked on each entry in the list whether he feels a particular action is appropriate; his response is immediately compared with the author's and he is informed of the result. The final and more personalized form of feedback is a short essay in which the student gives his opinion on the action. These essays are then stored, and later printed out for the instructor to read, review, and comment on. Although very limited student feedback was available, generally the students liked the instructional design feedback features. (VT)

ED175453 IR007622

The Effect of Instructional Presentation Sequence on Student Performance in Computer-Based Instruction. Final Report.

Lahey, George F.

Naval Personnel Research Activity, San Diego, Calif. Navy Training Research Lab.

Jun 1979 22p.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: EVALUATIVE REPORT (142)

This study compared the effects of several presentation sequences on lesson performance to deterimine whether sequence has a significant effect on performance in computer-based instruction, and whether using the same sequence consistently is more effective than not being consistent. Thirty-six students from the Basic Electricity and Electronics School, Service School Command, San Diego, were randomly assigned to one of four groups differing by the instructional presentation sequence used. The first group saw lessons in a rule-examples-practice sequence; the second, in an examples-rule-practice sequence; the third, in a practice-examples-rule sequence; and the fourth, in a random sequence. The lesson materials were three computer-based instruction lessons delivered via PLATO IV terminals, one on voltage in series circuits, and one each on using the Simpson Model 260-5P multimeter as an ammeter and as a voltmeter. There were no consistent differences in performance among the four groups during the three lessons. Conclusions and recommendations for further study of instructional sequencing are outlined. (Author/RAO)

ED165716 IR006280

Learner Control of Computer-Based Instruction: A Comparison to Guided Instruction.

Lahey, George F.

Mar 1978 12p.; Paper presented at the Annual Meeting of the Association for the Development of Computer Based Instructional Systems (Dallas, Texas, March 1-4, 1978); For related document, see ED 160 072

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PAPER (150)

The effects of learner control in Computer Based Instruction (CBI) were compared to learner control with advice as to what content to see next, and to programmed control. Students in training at the Basic Electricity/Electronics School, Service Command, Naval Training Center, San Diego, served as subjects in this study. Materials used were four lessons on using a multimeter. Students were assigned randomly to one of three treatment modes: learner control (student is free to choose individual lesson segments and content within lesson segments without restrictions on the order in which he sees individual materials or on how often he sees them); learner control with guidance (used an unobtrusive arrow superimposed on the lesson index or content choice page to recommend which lesson segment or lesson content the student should select next); or programmed control (imposed the same guidance parameters prescribed for the guided group but without choice). There was no significant difference in performance among the three groups. Following completion of the lessons, each student was asked to fill in an attitude questionnaire; there was no significant difference in the attitude towards CBI as a result of the different treatments. (VT)

ED171324 IR007378

Adaptive Design Strategies for Selecting Number and Presentation Order of Examples in Coordinate Concept Acquisition.

Park, Ok-Choon; Tennyson, Robert D.

Apr 1979 29p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, California, April 1979)

EDRS Price - MF01/PC02 Plus Postage.

Document Type: CONFERENCE PAPER (150); RESEARCH REPORT (143)

A total of 132 volunteer 10th and 11th grade students participated in an experiment to investigate two variables of computer-based adaptive instructional strategies for concept learning. The first variable tested the hypothesis that selection of number of examples according to on-task information is more efficient than selection according to pre-task information or pre-task plus on-task information. Data analysis showed that the on-task information condition needed significantly less instructional time and fewer instructional examples than either of the other two conditions. The second variable contrasted response-sensitive strategy with a response-insensitive strategy to determine the presentation order of examples within rational sets. Results showed that students in the response-sensitive group not only performed better but also needed less on-task learning time and fewer examples than the response-insensitive group. (Author/CMV)

ED131867 IR004252

The Effects of Interactive Graphics Analogies on Recall of Concepts in Science. Technical Report No. 79, 1 January 1976- 1 December 1976.

Rigney, Joseph W.; Lutz, Kathy A.

University of Southern California, Los Angeles. Behavioral Technology Labs.

Aug 1976 66p.

Sponsoring Agency: Office of Naval Research, Arlington, Va. Personnel and Training Research Programs Office.

EDRS Price - MF01/PC03 Plus Postage.

Document Type: RESEARCH REPORT (143)

To study the effects of learner generated imagery on the learning of science material a series of three experiments were conducted. Interactive graphics using the plasma panel, a touch panel interface of the PLATO system, were used to simulate the topography and functions of a battery to teach elementary concepts in electrochemistry. Following a period of initial instruction, subjects either used the plasma panel to reconstruct their image of the battery, received verbal descriptions of the topography and functions to guide the creation of mental images of the battery's topography and functions, or played checkers. Interactive graphics were rated by students as the more interesting way to present information in science. When corrected for the effects of prior knowledge, mean scores on content tests were significantly higher for the interactive graphics group. The graphics were most effective during initial acquisition. Requiring students to reconstruct the graphic simulations after the initial lesson contributed less to verbal posttest performance. (KB)

ED137165 SO009878

Simulation Gaming: A Critical Review.

Roberts, Nancy

1976 25p.

EDRS Price - MF01/PC01 Plus Postage.

Document Type: RESEARCH REPORT (143)

The review of the empirical literature on simulation gaming categorizes positive, negative, and contradictory aspects of gaming as an educational tool as revealed by the research. The review, which concentrates on simulation games for elementary and secondary school students, is presented in seven sections. Section I presents a brief history of gaming. Section II assesses data in recent gaming literature on learning versus interest in role playing. The importance of background knowledge and abilities that students bring to games is discussed in section III, followed by identification of the problems and positive aspects of role playing in sections IV and V. Problem areas include lack of role involvement, boredom, and the similarity of all simulation games. Positive aspects include the changed role of the teacher, the socialization process that occurs during the game, and the ability of games to teach complex problems in the classroom. Section IV discusses computerized games, the contribution of computers to gaming, and the increased sense of efficacy experienced by students using computerized games. The last section summarizes the literature on gaming by listing the positive aspects of gaming, the major drawbacks, and the benefits which result from the new computerized games of strategy. References are included. (Author/DB)

ED145836 IR005277

The Effects of Pre- and Postquestions on Learning from Textual Material in a CAI Format. Technical Report No. 4.

Sinnott, Loraine T.; Alderman, Donald L.

Educational Testing Service, Princeton, N.J.

Jan 1977 53p.

Sponsoring Agency: Advanced Research Projects Agency (DOD), Washington, D.C.

EDRS Price - MF01/PC03 Plus Postage.

Document Type: RESEARCH REPORT (143)

This report concerns the effects of prequestion and postquestion formats in prose learning in computer-assisted instruction. Five experimental groups studied a set of eight passages under different prequestion-postquestion combinations. Twenty-five subjects, volunteers with high school degrees, were randomly assigned to each group. A final retention test had 32 items classified along two dimensions: one dependant on whether the inserted text questions prompted attention to the item, and the other dependant on whether the item required factual or inferential learning. The CAI format facilitated control over exposure to questions and passages, as well as data collection on performance measures like referral to passages, time spent on inserted questions, total study time, and scores on postquestion sets. A combination of prequestions and postquestions led to a 20% increase in student study time relative to the use of either question format alone, but did not facilitate relevant retention beyond the facilitation found with just prequestions or just postquestions. The use of prequestions interfered with incidental learning. While equal to the prequestions format in study time and effect on relevant learning, the postquestions format seemed preferable since it was not accompanied by depressed incidental learning. (Author)

ED160635 TM007718

Immediate vs. Delayed Feedback in a Computer-Managed Test: Effects on Long-Term Retention. Technical Report, March 1976-August 1976.

Sturges, Persis T.

California State Univ., Chico.

Mar 1978 38p.

Sponsoring Agency: Navy Personnel Research and Development Center, San Diego, Calif.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: RESEARCH REPORT (143)

This experiment was designed to test the effect of immediate and delayed feedback on retention of learning in an educational situation. Four groups of college undergraduates took a multiple-choice computer-managed test. Three of these groups received informative feedback (the entire item with the correct answer identified) either: (1) immediately item-by-item (2-second delay); (2) following the entire test (20-minute delay); or (3) 24 hours later (24-hour delay). The fourth (control) group received no feedback. Scores on a criterion test, given 1 to 3 weeks later, showed that retention was significantly better for the two delayed feedback groups (20-minute and 24-hour delay) than for the immediate feedback group (2-second delay). These results confirmed previous findings of laboratory experiments--that retention following delayed feedback is not degraded by the delay. (Author/CTM)

ED183130 IR008026

Effects of Alternative Response Mode Requirements on the Acccuracy of Student Response in Computer-Based Testing. Report Series 1979.

Thomas, David B.
Iowa Univ., Iowa City. Computer Center.
1979 8p.
Available from: CAI Laboratory, University of Iowa, Weeg Computing Center, Iowa City, IA 52242
EDRS Price - MF01/PC01 Plus Postage.
Document Type: RESEARCH REPORT (143)

This study was designed to determine the accuracy with which a student in a computer-based testing situation will be able to accurately communicate the selected answer to the computer. Such a test was administered to 34 students, with the answer to each item supplied. Examinees, who were identified as touch typists or non-typists, used either the numbers 1 through 5 or the letters A through E as possible answers. Test scores were significantly higher for examinees taking the test under the letter condition, and typists in this group completed the task more quickly; the non-typists worked faster under the number condition. An inspection of the errors revealed that adjacent and blank key errors occurred more frequently for the number condition and for nontypists. The limitations of this study which affect the generalizability of the findings are discussed, and it is recommended that the study be replicated with more realistic looking items and a more balanced sample. (Author/JEG)

Collections: ADCIS

Challenge to Educational Technology. Proceedings of the ADCIS 1976 Summer Conference.
Association for the Development of Computer-Based Instructional Systems
Aug 1976
Not Available through ERIC.

This collection of 33 conference papers includes the keynote address, papers from the general sessions on papers from the folowing special interest groups: Education of the Deaf, Implementation, Health Sciences, and Elementary/Secondary/Junior College.

ED148297 IR005207
New Directions in Educational Computing. Proceedings/1977 Winter Conference.
Association for the Development of Computer-based Instructional Systems.
Feb 1977 324p.; Proceedings of the 1977 Winter Conference of the Association for the Development of Computer-based Instructional Systems (Wilmington, Delaware, February 21-24, 1977)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: CONFERENCE PROCEEDINGS (021)

This collection of 39 conference papers is arranged by subject areas: keynote address; general topics; computer-based musical instruction; elementary, secondary, and junior college computer uses; health sciences computer uses; futures for courseware sharing; PLATO projects and uses; computer implementation issues; computers and the deaf; and evaluation by computer. (DAG)

ED160072 IR006231

New Directions in Educational Computing. Proceedings of ADCIS 1978 Conference.

Association for the Development of Computer-based Instructional Systems.

Mar 1978 575p.; For related documents, see IR 006 232-282 ; Parts may be marginally legible due to print quality

EDRS Price - MF02 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PROCEEDINGS (021)

The keynote address, given by Michael Allen, characterized the association as a group of devoted humanitarians who are committed to finding realistic educational and training alternatives. He discussed the potential role of computer-based education specialists in meeting general and specific instructional needs. Included in the proceedings are 59 papers arranged under the following section headings: general session, project reports, educators for the deaf, elementary/secondary/junior college, health education network users, and health sciences. See related documents for individual papers. (VT)

ED175447 IR007614

Mission of the Future. Proceedings of the Annual Convention of the Association for the Development of Computer-Based Instructional Systems. Volume I: General Session Papers and Project Reports (San Diego, California, February 27 to March 1, 1979).

Association for the Development of Computer-based Instructional Systems.

Mar 1979 332p.; Legibility varies; For related documents, see IR 007 614-616

Available from: Western Washington University, Bellingham, Washington 98225 (3 Volumes, $30.00)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PROCEEDINGS (021)

The first of three volumes of papers presented at the 1979 ADCIS convention, this collection includes most of the 30 papers presented at the general session and 34 project reports. The general session opened with seven papers on various aspects of videodisc technology and five papers describing phases in the life of CBE sites. The remaining presentations were concerned with a variety of topics, such as the use of a speech synthesizer with CBI, intelligent instruction systems, learning theory, evaluation, training teachers and administrators in computer applications, learner interaction in CAI, course development, authoring, and the application of bibliographic information retrieval techniques to CBE materials; a report on the development and implementation of CICERO at the Open University for distance learning is included. Projects described in brief reports include a university educational technology center, simulations for medical training, business applications, providing feedback in very large classes, CAI for the deaf, and CAI at several educational levels. Some papers include brief bibliographies. (RAO)

ED175448 IR007615

Mission of the Future. Proceedings of the Annual Convention of the Association for the Development of Computer-Based Instructional Systems. Volume II: Special Interest Groups (San Diego, California, February 27 to March 1, 1979).

Association for the Development of Computer-based Instructional Systems.
Mar 1979 472p.; Legibility varies; For related documents, see IR 007 614-616
Available from: Western Washington University, Bellingham, Washington 98225 (3 Volumes, $30.00)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: CONFERENCE PROCEEDINGS (021)

The second of three volumes of papers presented at the 1979 ADCIS convention, this collection includes 37 papers presented to four special interest groups--computer based training, deaf education, elementary/secondary education/junior colleges, and health education. The eight papers on computer based training describe computer graphics, computer supported graphics, and simulations in military training; CBI in flight instruction; a new self-paced course on BASIC language programming; and CMI in vocational education. The ten papers scheduled for the educators of the deaf are concerned not only with projects for teaching language/communication and writing skills to the deaf, but with access to CAI for the blind and visually handicapped, and programs in special education. Projects described for the elementary/secondary/junior colleges group focused on curriculum development, classroom applications, CAI in special education, attitudes of high school students toward the computer, CMI in a large school system, a program for functionally illiterate adults, and a survey course in computer science in a community college. The health interest group heard nine papers on various aspects of medical training using CAI, simulations, computerized tests, and a set of computer self-evaluation units designed to accompany a physiology course. Some papers are illustrated with flow charts and diagrams and/or include brief bibliographies. (RAO)

ED175449 IR007616

Mission of the Future. Proceedings of the Annual Convention of the Association for the Development of Computer-Based Instructional Systems. Volume III: Users Interest Groups (San Diego, California, February 27 to March 1, 1979).

Association for the Development of Computer-based Instructional Systems.
Mar 1979 324p.; For related documents, see IR 007 614-616
Available from: Western Washington University, Bellingham, Washington 98225 (3 Volumes, $30.00)
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: CONFERENCE PROCEEDINGS (021)

The third of three volumes of papers presented at the 1979 ADCIS convention, this collection includes 30 papers presented to special interest groups--implementation, minicomputer users, National Consortium for Computer Based Music Instruction, and PLATO users. Papers presented to the implementation interest group were concerned with faculty reactions to CAI tutorials, review lessons in English compositions, thematic information text revisions, self-paced instruction, problem solving with automatic mediation, linear programmed instruction compared with CAI, the computer in educational institutions, CMI and student achievement, software development, and the role of the computer programmer. Minicomputer projects described focused on self-paced learning, a shared CAI control program, as a classroom teaching tool, the current state of the field, the development of PILOT, and personal computers. Music educators heard papers on courseware development for microcomputers, CAI in music theory, evaluation of competency based aural training, and ear training for non-music majors. Reports on PLATO included the teaching of sex education, process operator training, foundation visual design, adult basic skills, and optical letterspacing, as well as on precision motion analysis in biomechanics, microprocessor courseware delivery, and the development of a user's guide. Some papers include flow charts, diagrams, data tables, models, and/or bibliographies. (RAO)

ED* IR008644

Computer-Based Instruction: A New Decade. 1980 Conference Proceedings (Washington, D.C., March 31-April 3, 1980).

Sponsoring Agency: Association for the Development of Computer-Based Instructional Systems, Bellingham, Wash. 98225

Includes 50 papers from general sessions and specialinterest groups sessions such as education for the handicapped, mini-micor, health, elementary/secondary/junior college, computer-based training, PLATO, and the National Consortiums for Computer-Based Music Education and Home Economics.

*ED number not available at time of printing.

Collections: AEDS

ED125660 IR003752

Computer Assisted Instruction. Papers Presented at the Association for Educational Data Systems Annual Convention (Phoenix, Arizona, May 3-7, 1976).

Association for Educational Data Systems, Washington, D.C.

May 1976 120p.; For related documents, see IR 003 748-756; Some parts may be marginally legible due to print quality of original

Available from: Association for Educational Data Systems, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 ($10.00 for entire proceedings)

EDRS Price - MF01/PC05 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Two abstracts and seventeen articles on computer assisted instruction (CAI) presented at the 1976 Association for Educational Data Systems (AEDS) convention are included here. Four new computer programs are described: Author System for Education and Training (ASET); GNOSIS, a Swedish/English CAI package; Statistical Interactive Programming System (SIPS); and Instructional Dialogue Facility (IDF) which helps classroom teachers learn CAI languages. Six papers examine interactive computer systems and interactive CAI, and one paper describes an interactive educational system which uses video discs in conjunction with computers. Six papers describe various programs: a CAI course in logic instruction for department of defense personnel, CAI for computer science education, computers for drill and practice in math, and general use of CAI in elementary school classrooms. A computer program which monitors student progress in calculus is described, and user groups are the topic of one article. (CH)

ED125662 IR003754

Hardware Developments; Microcomputers and Processors; Grade School/High School Instructional; and Computer-Aided Design. Papers Presented at the Association for Educational Data Systems Annual Convention (Phoenix, Arizona, May 3-7, 1976).

Association for Educational Data Systems, Washington, D.C.

May 1976 51p.; For related documents, see IR 003 748-756; Some parts may be marginally legible due to print quality of original

Available from: Association for Educational Data Systems, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 ($10.00 for entire proceedings)

EDRS Price - MF01/PC03 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Compiled are ten papers describing computer hardware and computer use in elementary and secondary school instruction presented at the Association for Educational Data Systems (AEDS) 1976 convention. An oral/aural terminal is described followed by two papers about the use of minicomputers and microprocessors. Seven papers discuss various uses of the computer in elementary and high school instruction: a computer can be used to plot and display conic sections and environmental designs, to help teach reading skills, and to generate tests or homework exercises. One paper recommends the use of games in computerized drills, and another explains computerized demonstration of some mathematics principles. The importance of the school computer coordinator is outlined by the Minnesota Educational Computing Consortium. (CH)

ED125663 IR003755

Higher Education and Final Papers Presented at the Association for Educational Data Systems Annual Convention (Phoenix, Arizona, May 3-7, 1976).

Association for Educational Data Systems, Washington, D.C.

May 1976 46p.; For related documents, see IR 003 748-756; Some parts may be marginally legible due to print quality of original

Available from: Association for Educational Data Systems, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 ($10.00 for entire proceedings)

EDRS Price - MF01/PC02 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Five articles on computer use in higher education and three final papers presented at the Association for Educational Data Systems (AEDS) 1976 convention are included in this document. Implementing and evaluating computer technology in higher education is the subject of two articles, and another article describes instructional and administrative computing at a minority community college in a bilingual-bicultural setting. Application of a time sharing computer system to undergraduate business education and to teacher education is assessed in two papers. Computer use in a college-level high school biology course is outlined. Minicomputers for conducting real-time computer controlled experiments are evaluated. The document concludes with a case study of the publication of a course in computer programing. (CH)

ED125658 IR003750

Instructional (I). Papers Presented at the Association for Educational Data Systems Annual Convention (Phoenix, Arizona, May 3-7, 1976).

Association for Educational Data Systems, Washington, D.C.

May 1976 93p.; For related documents, see IR 003 748-756; Some parts may be marginally legible due to print quality of original

Available from: Association for Educational Data Systems, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 ($10.00 for entire proceedings)

EDRS Price - MF01/PC04 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Sixteen articles and two abstracts on the use of computers and electronic equipment in instruction presented at the Association for Educational Data Systems (AEDS) 1976 convention are included here. Uses of the computer to generate and solve mathematical models, to generate examinations, and to facilitate concept learning are examined. Six articles discuss simulation in the following areas: biology, macroeconomics, management, and business policy. Papers on computer assisted instruction cover instruction in accounting, geography, programing, diacritical marking, economics, and laboratory methods. One paper examines prediction of success in data processing training, and another discusses the use of programable, hand-held calculators for calculus instruction. A suggested programing curriculum for a small college is outlined. (CH)

ED125659 IR003751

Instructional (II); Computerized Testing; and CATC Discussion and Demonstration. Papers Presented at the Association for Educational Data Systems Annual Convention (Phoenix, Arizona, May 3-7, 1976).

Association for Educational Data Systems, Washington, D.C.

May 1976 91p.; For related documents, see IR 003 748-756; Some parts may be marginally legible due to print quality of original

Available from: Association for Educational Data Systems, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 ($10.00 for entire proceedings)

EDRS Price - MF01/PC04 Plus Postage.

Document Type: CONFERENCE PAPER (150)

Eighteen papers on instructional technology, computerized testing, and computer assisted test construction (CATC) presented at the 1976 Association for Educational Data Systems (AEDS) convention are included here. Two papers discuss computer assisted instruction in calculus and teacher education courses. The use of computers in theoretical mathematics, school media centers, and individualized instruction programs is presented in four papers. Goal programing in education is explained and the uses of the hand-held calculator for education are reviewed. Faculty rating policies for mathematics students are analyzed. Eight articles examine aspects of computerized testing and CATC. They include an overview of computers and testing, the use of computerized quiz grading, interactive computerized testing, descriptions of SOCRATES, ALLCOMBS, CREAM, and the Classroom Teacher Support System. (CH)

ED175446 IR007613

Renaissance Man: The Key Component. Association for Educational Data Systems Proceedings: 17th Annual Convention, May 14-18, 1979.

Association for Educational Data Systems, Washington, D.C.

May 1979 378p.

Available from: Association for Educational Data Systems, 1201 Sixteenth Street, N.W., Washington, D.C. 20036 ($10.00 prepaid)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PROCEEDINGS (021); GENERAL REPORT (140)

Eighty-six papers presented at the 17th Annual Association for Educational Data Systems convention cover the educational application of computers in the following areas: computer assisted instruction, instructional and learning processes, computer-related curriculum, educational administration, computer resources, and data-center administration. Many of the papers are introduced by author abstracts and contain research methods, results, and lists of references cited. For ease in locating individual papers, separate title and author indexes are provided. (RAO)

Collections: Conference on Computers in the Undergraduate Curriculum

ED156160 IR006142

Proceedings of 1977 Conference on Computers in the Undergraduate Curricula.

Christensen, Don A., Ed.

Michigan State Univ., East Lansing.

Jun 1977 354p.; For related documents, see IR 006 428-449 ; Parts of the document may be marginally legible

Available from: Ted Sjoerdsma, 128 F LCM, University of Iowa, Iowa City, Iowa 52242 ($10.00)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PROCEEDINGS (021)

The proceedings of the Eighth Conference on Computers in Undergraduate Curricula include 54 technical reports on the use of computer technology in various areas of undergraduate curricula, including the biological sciences, business, economics, education, humanities, mathematics, physics, psychology, chemistry, engineering, social science, and statistics. Twelve additional reports are concerned with computer graphics, simulation, and use of the computer in testing. A computer aid for record keeping and two college programs are also described in individual papers. (CMV)

ED178067 IR007809

Proceedings of 1978 Conference on Computers in the Undergraduate Curricula: CCUC9 (9th, Denver, CO, June 12-14, 1978).

Prather, Ronald E., Ed.

Jun 1978 393p.; For related documents, see IR 007 810 and ED 156 160

Available from: 111 Weeg Computing Center, University of Iowa, Iowa City, Iowa 52242 ($10.00 per copy)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: CONFERENCE PROCEEDINGS (021); GENERAL REPORT (140)

The 48 papers in this conference report are concerned with the use of computers in undergraduate curricula in various educational settings. Articles are split into general topic headings, including Computer Augmented Video Education (CAVE), Mathematics, Simulation, Testing, Humanities, Social Science, Computer Assisted Instruction/Computer Managed Instruction, Computer Science, Business, Science, Statistics, and Computer Services. (JEG)

Collections: National Educational Computing Conference

ED178068 IR007810

Proceedings of NECC 1979 National Educational Computing Conference (1st, Iowa City, IA, June 25-27, 1979).

Harris, Diana, Ed.

Jun 1979 393p.; For related documents, see IR 007 809 and ED 156 160; Legibility of some figures and examples varies; Photograph removed

Available from: 111 Weeg Computing Center, University of Iowa, Iowa City, Iowa 52242 ($10.00 per copy)

EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.

Document Type: GENERAL REPORT (140); CONFERENCE PROCEEDINGS (021)

The 68 presentations included in this conference proceedings discuss and evaluate educational computing, computer science, and computer engineering. This conference was held instead of the tenth Conference on Computers in Undergraduate Curricula, (CCUC) in an effort to expand the scope of information covered; the National Educational Computing Conference (NECC) is the first product of those attempts. Papers are grouped into broad subject areas, including Computer Based Education, Engineering, Pre-College Teacher Education, Computer Assisted/Managed Instruction, Minority Institutions, Natural Sciences, Computer Science, Pedagogy, Pre-College Environment, Simulation in Business and Economics, Social Science, Mathematics, Elementary School Children Programs, Micros and Minis, Handicapped, Statistics, Health, and Humanities. An author index is included. (JEG)

ED* IR008912

Proceedings of NECC/2. National Educational Computing Conference (2nd, Norfolk, Virginia, June 23-25, 1980).

Harris, D., Ed.; Collison, B., Ed.

Available from: 111 Weeg Computing Center, University of Iowa, Iowa City, Iowa 52242 ($10.00 per copy)

Contains 74 papers on the following topics: microcomputers, business/economics, research on microcomputers in education, humanistic studies, computer literacy, science and engineering, structured programing, computer science education,computing in the K-12 curriculum, mathematics, videodisc, PASCAL, computer laboratories in education, computing curricula, and computer games in instruction.

*ED number not available at time of printing.

Collections: Miscellaneous

ED167184 IR007104

Computerized Multi-Media Instructional Television. COMIT. Proceedings of a Symposium.

Andrews, Gordon C., Ed.; Knapper, Christopher K., Ed.

Waterloo Univ. (Ontario).

6 Apr 1978 119p.; Proceedings of a Symposium on COMIT (Waterloo, Ontario, Canada, April 6, 1978); For related documents see IR 007 186-193 and IR 007 285

EDRS Price - MF01/PC05 Plus Postage.

Document Type: CONFERENCE PROCEEDINGS (021); PROJECT DESCRIPTION (141)

A joint research project in educational techniques, which was conducted by the University of Waterloo and the IBM Corporation, explored the use of color television with random-access videotape under computer control. At the end of the three-year project, papers were solicited from all COMIT (Computerized Multi-Media Instructional Television) participants, and 12 of the 15 professors who had authored courses submitted papers. A representative sample of seven papers was presented at a one-day COMIT Symposium, some accompanied by videotaped demonstrations that illustrated the teaching techniques used. In order to provide as complete a record of the project as possible, all 12 of the papers from participants are included in this volume (grouped, where possible, by subject), as well as comments by the project director and the coordinator from IBM and a summary of the pedagogical lessons learned from COMIT. Courses described include environmental engineering, survey design, advanced calculus, organic synthesis, biology, human movement, ice hockey practice, football, leisure experience, history of art, and English. The appendix contains the schedule for the COMIT Symposium with the names of the speakers. (Author/JEG)

ED125608 IR003695

Computer Assisted Instruction: The Best of ERIC, 1973-May 1976.

Beard, Marian

Stanford Univ., Calif. ERIC Clearinghouse on Information Resources.

Aug 1976 42p.; For a related document see ED 076 025

Sponsoring Agency: National Inst. of Education (DHEW), Washington, D.C.

EDRS Price - MF01/PC02 Plus Postage.

Document Type: BIBLIOGRAPHY (131)

This bibliography contains annotations of reports, reviews, and other documents on computer-assisted instruction (CAI) derived from a search of the Educational Resources Information Center (ERIC) system. It covers 1973 to May 1976 and serves as an update to an earlier paper, "The Best of ERIC: Recent Trends in Computer Assisted Instruction" (ED 076 025). Section one covers major issues of interest, and section two presents specific applications and cases of CAI. PLATO and TICCIT, two interactive CAI programs, are the subjects of entries in section three. Research via CAI is covered in section four, and the last section covers descriptions of other CAI work such as applications in teacher training, development of author languages, and districtwide experience implementing CAI. (CH)

ED118061 IR002954

The Papers of the ACM SIGCSE-SIGCUE Technical Symposium, Computer Science and Education (Anaheim, California, February 12 and 13, 1976).

Colman, Ron, Ed.; Lorton, Paul, Jr., Ed.

Association for Computing Machinery, New York, N.Y. Special Interest Group in Computer Science Education.; Association for Computing Machinery, New York, N.Y. Special Interest Group in Computer Uses in Education.

SIGCSE Bulletin, v8 n1 Feb 76, SIGCUE Topics, V2 Feb 76

Feb 1976 399p.

Available from: ACM Order Department, P. O. Box 12105, Church Street Station, New York, N.Y. 10249 ($15.00/members; $20.00/non-members)

Document Not Available from EDRS.

Document Type: CONFERENCE PROCEEDINGS (021)

Over 65 papers presented at a joint symposium sponsored by the Association for Computing Machinery's Special Interest Groups on Computer Uses in Education and on Computer Science Education are gathered here. The papers cover a wide range of topics, including structured programing, computer literacy, computer science education, computerized test generation, secondary school mathematics instruction, computer-assisted instruction, advanced computer science courses, and computers in society. (JY)

ED143345 IR005088

Conduit Catalog of Reviewed and Tested Curriculum Materials.

Hepler, Molly L., Ed.
Iowa Univ., Iowa City.
1977 57p.
Sponsoring Agency: National Science Foundation, Washington, D.C.
EDRS Price - MF01/PC03 Plus Postage.
Document Type: BIBLIOGRAPHY (131)

CONDUIT reviews and packages computer-based materials as alternative methods of teaching in higher education. Curriculum areas include biology (4 packages), chemistry (3), management science (9), mathematics (2), physics (6), and social science (17). This catalog individually describes the programs including suggested previous coursework, specific subject areas emphasized, an abstract of the problem posed, and anticipated results. A price list and ordering information are included. (JAB)

ED148396 IR005573

Academic Computing Directory. A Search for Exemplary Institutions Using Computers for Learning and Teaching.

Human Resources Research Organization, Alexandria, Va.
1977 125p.
Sponsoring Agency: National Science Foundation, Washington, D.C.
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: DIRECTORY (132)

This directory identifies some of the schools, colleges, and universities that successfully use computers for learning and teaching in the United States. It was compiled to help teachers, administrators, computer center workers, and other educators exchange information, ideas, programs, and courses. Individuals listed as contacts are willing to share their knowledge with others. Ninety-four elementary and secondary schools, 71 public school districts, 37 community colleges, 158 private and public colleges and universities, and seven public access institutions are listed. Entries are arranged geographically by state for each type of institution, and include information on reasons for inclusion, enrollment, users, illustrative applications, computers, terminals, public information, and contact. A list of exemplary institutions in academic computing is attached. (Author/KP)

ED174247 IR007531

Annotated Bibliography of Human Factors: Laboratory Reports (1945-1968). Supplement #3, 1976-1978.

Naval Training Equipment Center, Orlando, Fla. Human Factors Lab.
Apr 1978 35p.
Available from: National Technical Information Services (NTIS), 5258 Port Royal Road, Springfield, Virginia 22161

EDRS Price - MF01/PC02 Plus Postage.
Document Type: BIBLIOGRAPHY (131)

A complete bibliographic reference and an abstract are given for each publication of the Human Factors Laboratory from 1976-1978, including journal articles and conference proceedings papers which members of the Laboratory published during the same period. Three indexes--index by source (contractor or in-house), author index, and subject matter index--are also provided. (Author)

ED176805 IR007827

Computer Based Learning in the Soviet Union--I.
Rushby, N. J.
London Univ. (England). Imperial Coll. Computer Centre.
Oct 1978 16p.; Best copy available; For related documents, see IR 007 784 and IR 007 789
EDRS Price - MF01 Plus Postage. PC Not Available from EDRS.
Document Type: BIBLIOGRAPHY (131)

This bibliography lists 86 references, most of which are annotated, to papers and journal articles on computer assisted learning (CAL) in the Soviet Union. Topics dealt with include problem solving models, decision strategies, programmed instruction, algorithms, simulation, educational games, databases, and testing. The references have been extracted from the computer based CAL bibliography maintained by the CEDAR Project. (Author/CMV)

ED180441 IR007915

Proceedings of the Annual Conference on Academic Computing Applications (6th, Indiana University Northwest, Bloomington, Indiana, April 6, 1979).
Stentz, Michael, Ed.; Motsinger, Linda, Ed.
Indiana Univ. Northwest, Gary.
6 Apr 1979 237p.; Some examples and figures may not reproduce
Available from: Wrubel Computing Center, Indiana University, Mem W 002, Bloomington, IN 47401 ($3.50 per copy)
EDRS Price - MF01/PC10 Plus Postage.
Document Type: CONFERENCE PROCEEDINGS (021); GENERAL REPORT (140)

Topics which range from the more popular computing applications in accounting, statistics, and administration to the less ordinary applications of the computer to the fields of fine arts, medicine, and linguistics, are discussed in this collection of 22 conference papers. The papers are divided into four tracks: the first deals with statistical computing and methods for teaching it; the second is concerned with applications of the computer in theater and journalism, music, the arts, and general utility programs; the third includes information about administration, computer simulations, plotting applications, and computing futures; and a concluding paper summarizes a grammatical concordance package program for the Greek New Testament. (JEG)

ED127928 IR003890

Index to Computer Based Learning, 1976 Edition.
Wang, Anastasia, Ed.
Wisconsin Univ., Milwaukee. Instructional Media Lab.
1976 1,836p.; Document is on 42X microfiche only (4 fiche)
Available from: Instructional Media Laboratory, University of Wisconsin, P.O. Box 413, Milwaukee, Wisconsin 53201 ($9.50)

Document Not Available from EDRS.

Document Type: BIBLIOGRAPHY (131)

Computer-based curriculum materials in 138 different subject areas are listed in this microfiched index. All the materials are cross-indexed by subject matter, program language, central processor, instructional strategies, and source. Each entry is described by 23 different characteristics, including subject field, program characteristics, source, description, level, instructional style, and availability. (EMH)

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